THE MARINE REVIEW

VOL. XXXIII. CLEVELAND, APRIL 19, 1906. No. 16.

DEDUCTIBLE AVERAGE WAIVED.

Buffalo, April 17.—It appears that the lake underwriters struck a pretty big snag before they had covered a very great part of the spring hull business. For some years, since 1899 or thereabouts, there had been an item in the calculation with the vessel owner known as the deductible average, which had taken a half per cent out of the vessel owner at the outset in case of partial losses and if a loss did not exceed this amount the owner obtained nothing out of the insurance, for this reduction was made at the beginning of the calculation.

The reason for this deduction or charge to the vessel, as it really is, was that it tended to make the owner cautious and to take better care of his property. There seems to have been quite a call for such a rule, for that was in the day when a vessel could put in a claim for a scratch and collect it of the companies. The lake underwriters were preparing to continue the deduction this season and supposed that all other underwriters were agreed to it, when suddenly they discovered that the English underwriters were writing policies with it left out. There was no notice in regard to it and so far as appears, it may have been a mere blunder on somebody's part.

But it had gone too far to be given up and there was nothing to do but follow suit, so the plan adopted was to make use of the policy of 1898, which was previous to the invention of the deductible average, a proceeding that of course is very pleasing to the vessel owner. For instance the owner of the steamer Chili, of 1875 tons measurement, finds that it makes about $600 difference in his favor on her insurance. The loss to the insurance companies on the entire lake fleet will be a very tidy sum.

Still it may happen that the deductible average was not a mere imposition for revenue only. The underwriters are bound to maintain that it was not, but rather in the nature of a hopple placed on a horse to keep it from jumping a fence. There is really less charge of carelessness in the handling of lake craft than there ought to be and it will be claimed that it has been justified. As to that it may take future experience as well as past to show. Vessel owners ought to make it appear by special carefulness that it was not valuable as a precaution, or it may easily happen that the underwriters will get together and put it back on next season.

In a general way the lake insurance business seems to have gone on quite to the satisfaction of the underwriters so far this season. There is a large amount of complaint of winter dry-dock bills, only a part of which have come in yet and oddly enough there is a big percentage of it in the line of repairs for damages by ice in a winter that has been open enough to make navigation almost possible continuously, so little ice has there been. But the underwriters are not strong enough to make the fleet stay in out of the ice and in fact the 1898 policy now in force extends the time of December insurance.

It is probable that Buffalo never did anything like the amount of winter repair work that was done last winter. Of course the fleet was up to the limit as to number and value, on account of the big grain fleet that came in to lay up, but it will be found that the percentage of vessels in serious need of repair has been very great, so that the capacity of the two shipyards was taxed to the utmost from the time the fleet laid up till it is off again.

It is found that the owners are taking out hull insurance quite as much as usual, the new steel monsters coming in very freely, so that it is likely that a volume of business as large as ever will be done. Almost everything covered is steel, for the wooden hull that has been classed down to A2 is hardly insurable, on account of the rate that has to be asked. In fact the underwriters do not seem to want such risks at all. Odd that the old-time fleet used to be considered all right down to a class that was very much below A2.

There has been some advance in cargo rates and the underwriters claim that it was very much needed. Coal, lumber and ore risks had come to be written at almost any rate and the traffic no doubt will be quite able to stand something more on them. It does not appear that there has been any general advance made.

Everybody looks for a profitable and generally mild season and the insurance section of the traffic certainly needs it if there is to be a cheerful frame of mind in the offices of the underwriters.

JOHN CHAMBERLIN.

MEAN STAGES OF WATER.

The gauge records of the United States lake survey show the following mean stages of water above mean sea level, for March, 1906:

	Stages during March. 1906. Feet.	Higher than during same month last year. Feet.	Higher than during Mar. 1895. Feet.
Lake Superior	602.26	0.22	0.15
Lake Michigan	580.78	0.42	1.01
Lake Huron	580.78	0.49	0.93
Lake Erie	571.69	0.51	0.68
Lake Ontario	246.16	0.61	1.76

Present fall Lake Huron to Lake Erie, 0.02 foot less than year ago.

Hall's Ship Yard, Eagle Harbor, Wash., is building four barges for the North American Transportation & Trading Co., to be 161 ft. long, 38 ft. beam, for service in the Yukon river trade.

Generated on 2024-08-30 17:58 GMT / https://hdl.handle.net/2027/mdp.39015043584393
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

SCIENTIFIC LAKE NAVIGATION.

By Clarence E. Long.

PART III.

THE SIGNS OF ARITHMETIC.

The *sign of addition* is an upright cross +.

It is called plus, and is placed between the numbers to be added. Thus 3 + 7 is read 3 plus 7, and it means that 3 and 7 are to be added.

The *sign of equality* is two equal short horizontal lines: =. It is read *equals* or *is equal to*. Thus, 3 + 7 = 10 is read 3 plus 7 equals 10.

The *sign of subtraction* is a short horizontal line —. It is called *minus*. When it is placed between two numbers, it shows that the one after it is to be subtracted from the one before it. Thus, 9° — 5° is read 9° *minus* 5°, and means that 5° is to be subtracted from 9°.

The *sign of multiplication* is an oblique cross ×. It is read *multiplied by* when the multiplicand precedes it and *times* when the multiplier precedes it. Thus, 4′ × 3 is read 4′ multiplied by 3 when 4 is the multiplicand, but it is read 4 times 3′ when 4 is the multiplier.

The *sign of division* is ÷. It is read *divided by*. When it is placed between two numbers, it shows that the one on the left is to be divided by the one on the right. Thus, 63 ÷ 9 is read 63 divided by 9. Or more compactly, thus:

+ means *plus*, the sign of addition.
= means *equals to*, the sign of equality.
— means *minus*, the sign of subtraction.
× means *multiplied by*, the sign of multiplication.
÷ means *divided by*, the sign of division.

THE FOUR FUNDAMENTAL RULES OF ARITHMETIC AS APPLIED TO DEGREES, MINUTES AND SECONDS OF ARCS.

ADDITION.

The process of finding a number which is equal to two or more numbers is called *addition*.

The result obtained by adding is called the *sum* or *amount*.

Only like numbers can be added. Numbers that have the same unit are called like numbers.

The numbers added are called *addends*. The sum and the addends must be like numbers.

In adding compound denominate numbers, write units under units of the same denomination in the same column.

Rule for adding °, ′, ″, ‴.

Write the numbers so that the degrees will stand under degrees, minutes under minutes, seconds under seconds, and thirds under thirds; always adding from right to left, that is, commencing with the ‴, subtracting 60 from any amount over 60, writing the remainder down under the column for thirds and mark it ‴, carrying the 1 ″ (if any) to the column of seconds. In the same manner add the seconds together with the 1 ″ carried over (if any) subtracting 60 from any amount over 60, writing the remainder down under the column for seconds and mark it ″, carrying the 1′ (if any) to the column of minutes. In the same manner add the minutes together with the 1′ carried over (if any) subtracting 60 from any amount over 60, writing the remainder down under the column for minutes and mark it ′, carrying the 1° (if any) to the column of degrees and adding the degrees together in the same manner as the minutes, seconds and thirds, and mark it ° which completes the operation; thus,

Find the sum of 35° 30′ 20″ 15‴ + 20° 20′ 30″ 40‴. Operation:

35° 30′ 20″ 15‴
20° 20′ 30″ 40‴

Ans. 55° 50′ 50″ 55‴ Sum or amount.

In the above operation no subtracting nor carrying over was necessary.

Find the sum of 27° 27′ 56″ + 36° 57′ 49″. Operation:

27° 27′ 56″
36° 57′ 49″

63° 84′ 105″
+ 1° + 1′ —60″ = 1′

64° 85′ 45″
—60′ = 1°

25′

Answer 64° 25′ 45″.

Explanation of the foregoing example: 56″ + 49″ = 105″, which contains 60″, or 1′ and 45″ over; write this remainder down under the column for seconds and mark it ″ carrying the 1′ to the column for minutes, then 27′ + 57′ + 1′ = 85′, which contains 60′, or 1°, once and 25, over; and write this remainder down under the column for minutes and mark it ′ carrying the 1° to the column for degrees; then 27° + 36° + 1° = 64°, whence 27° 27′ 56″ + 36° 57′ 49″ = 64° 25′ 45″.

Find the sum of 105° 57′ 43″ + 33° 45′ 17″. Operation:

105° 57′ 43″
33° 45′ 17″

138° 102′ 60″
+ 1° + 1′ — 60″ = 1′

139° 103′
— 60′ = 1°

43′

Answer 139° 43′.

Explanation: 43″ + 17″ = 60″, which contains 60″, or 1′, once and nothing over; carry the 1′ to the column of minutes, then 57′ + 45′ + 1′ = 103′, which contains 60′ or 1°, once and 43′ over; write this remainder under the column for minutes and mark it ′, carrying the 1° to the column for degrees; then, 105° + 33° + 1° = 139°, which completes the operation; whence 105° 57′ 43″ + 33° 45′ 17″ = 139° 43′.

Find the *sums* or *amounts*, in the following examples:

180°	90°	45°	30°
180°	90°	45°	30°
90°	45°	30°	
90°	45°	30°	
45°	30°		
45°	30°		
45°	30°		
45°	30°		
30°			
30°			
30°			
30°			

360° is the answer in each of the above examples.

The addition of degrees, minutes and seconds is performed in the same manner as in adding bushels, pecks and quarts together. Remember that degrees should be placed under degrees, minutes under minutes, seconds under seconds and thirds under thirds. Thirds are not used in practical work, and neither are minutes and seconds in compass work, but, of course, in the higher mathematics of navigation they are all employed.

Generated on 2024-08-30 17:56 GMT / https://hdl.handle.net/2027/mdp.39015043584393
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

Bear in mind that in ′, ″ and ‴, 60 is always the basis, and represents the scale in degree work, and that as soon as you get over 59 of anything it is then something else, always of a higher denomination. For instance, supposing you added 45′ and 25′ together, which would be 70′, or 1° 10′; 70″ would be 1′ 10″; 70‴ would be 1″ 10‴.

Examples for practice: Find in each case the sum or amount of:

11° 15′ + 5° 37′ 30″. Ans. 16° 52′ 30″.
2° 48′ 45″ + 8° 26′ 15″. Ans. 11° 15′.
180° + 7° 40′ 20″. Ans. 187° 40′ 20″.
90° + 135° 40′. Ans. 225° 40′.
5′ 40″ + 18° 15′ 15″. Ans. 18° 20′ 55″.
7° 00′ 45″ + 59′ 15″. Ans. 8°.
10° 40′ 50″ + 8° 19′ 10″. Ans. 19°.
40° 18′ 45″ + 5° 50′ 15″. Ans. 46° 09′.

Note.—There will be cases where it is necessary to divide the sums of ′, ″ or ‴ by 60 instead of subtracting 60 from any amount over 60. For example, supposing that you were adding three or more sets of numbers that gave a sum of 120 or more than 120, as 30′ + 48′ + 52′. Operation:

```
  + 30′
  + 48′
  + 52′
  ------
60)130′(2°
 —120′
  ------
    10′
```

Ans. 2° 10′, that is, 130′ = 2° 10′.

SUBTRACTION.

The process of finding what is left when a part of a number is taken from it, or of finding the difference between two numbers is called *subtraction.*

The number from which another is to be subtracted is called the *minuend;* or the *minuend* is the greater of the two numbers.

The number to be subtracted is called the *subtrahend*; or the *subtrahend* is the smaller of the two numbers.

The result obtained by subtracting is called the *remainder* or *difference.*

Only like numbers can be subtracted. Like numbers mean the same kind or names, as 5° — 2°; 12 hours — 4 hours, etc.

Rule for subtracting °, ′, ″, ‴.

Write the numbers to be subtracted, the less under the greater, placing degrees under degrees, minutes under minutes, seconds under seconds and thirds under thirds. Always subtract from right to left; thus:

From 11° 12′ 10″ 30‴ subtract 10° 10′ 10″ 20‴. Operation:

```
  11°  12′  10″  30‴  (minuend.)
—10°  10′  10″  20‴  (subtrahend.)
-------------------
Ans. 1°   2′  00″  10‴  (difference or remainder.)
```

Explanation: 20‴ from 30‴ leaves 10‴ and 10″ from 10″ leaves nothing, and 10′ from 12′ leaves 2′ and 10° from 11° leaves 1°; whence 11° 12′ 10″ 30‴ — 10° 10′ 10″ 20‴ = 1° 2′ 0″ 10‴. Again,

From 26° 35′ 42″ take 12° 45′ 50″.

Arranged it is:

```
 26°  35′  42″
— 12°  45′  52″
--------------
```

Note.—Change 26° 35′ 42″ to 25° 94′ 102″ for the reasons given below. Explanation: Since 50″ cannot be taken from 42″ we take 1′, which is equal to 60″, from 35′ and add it to the 42″, which equals 102″, from this we take the 50″ and there remains 52″ which we set under the column for seconds and mark it ″; then, as we have taken 1′ from the 35′ there remains but 34′ and as we cannot take 45′ from 34′ we take 1°, which is equal to 60′, from 26° and add it to the 34′, which makes a sum of 94′ from which we take the 45′ with a remainder of 49′, which we set under the column for minutes and mark it ′; then, as we have taken 1° from 26° we have 25° left and from which we take the 12°, with a remainder of 13°, which we set under the column for degrees and mark it °. Remember, that there is no difference between 26° 35′ 42″ and 25° 94′ 102″.

For the foregoing reason we arrange this example in this manner:

```
26°  35′  42″ = 25°  94′  102″
          — 12°  45′   50″
          ----------------
Ans.      13°  49′   52″
```

From 292° take 143° 59′ 59″

Arranged:

```
292°  00′  00″ = 291°  59′  60″
           — 143°  59′  59″
           ----------------
Ans.       148°  00′  01″
```

The sum of the subtrahend and remainder is equal to the minuend.

Proof:—

```
    143°  59′  59″   Subtrahend.
+   148°  00′  01″   Remainder.
+     1°   1′
-------------------
    60′ = 1° 60″ = 1′
Ans. 292°            Minuend.
```

When the minutes and seconds in the minuend (the greater of the two numbers to be subtracted) are smaller than those in the subtrahend (the smaller of the two numbers to be subtracted) they should be increased by the same amount that it takes to make one of the next higher denomination. For example, supposing that you wish to subtract 20′ from 10° 15′ (remember minutes under minutes, etc.) Now, you cannot take 20′ from 15′, so you increase the 15′ by the same amount that it takes to make one of the next higher denomination, that is, 1° or 60′. This added to the 15′ makes 75′. and 20′ from 75′ leaves 55′ and the 1°, or 60′, taken from the 10° leaves 9°, therefore, 20′ subtracted from 10° 15′ is 9° 55′. There is no difference between 75′ and 1° 15′, though, of course, it would be more proper to say 1° 15′ instead of 75′. You would not say 100 cents for 1 dollar. Both simple and compound denominate numbers should be expressed in their highest terms.

In the subtraction of ′, ″, ‴ always look first and see if the minutes and seconds of the minuend are smaller than those of the subtrahend. If they are less increase them as above explained and decrease the number of degrees accordingly, or decrease the degrees by one. Until you get familiar with the process you may find it convenient to fix and arrange the minuend, if it needs to be increased, over the regular minuend, and to cancel all numbers changed, before subtracting; in this manner:

From 120° 15′ 20″ take 5° 20′ 40″

```
119°  74′  80″ =
120°  15′  20″
—  5°  20′  40″
---------------
Ans. 114°  54′  40″
```

Examples for practice. Find the *difference* or *remainder* in each of the following:

20° 45′ 15″ — 12° 50′. Ans. 7° 55′ 15″. 42° 17′ 40″ — 22° 30′. Ans. 19° 47′ 40″. 15° 42′ 50″ — 7° 45′ 59″. Ans. 7° 56′ 51″. 22° 18′ 59″ — 20° 00′ 10″. Ans. 2° 18′ 49″. 17° 00′ 40″ — 15° 59′ 42. Ans. 1° 00′ 58″. 28° 17′ — 12° 14′ 50″. Ans. 16° 02′ 10″. 180° — 40° 15′ 20″. Ans. 139° 44′ 40″. 135° — 24° 59′ 59″. Ans. 110° 00′ 01″.

Generated on 2024-08-30 17:56 GMT / https://hdl.handle.net/2027/mdp.39015043584393
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

MULTIPLICATION.

The process of taking one number as many times as there are units in another is called *multiplication;* or,

Multiplication is a short process of adding equal numbers.

The number taken or multiplied is called the *multiplicand.*

The number showing how many times the multiplicand is taken is called the *multiplier.*

The result obtained by multiplying is called the *product.*

The multiplicand and multiplier are called the *factors of the product.*

The multiplier must be regarded as an abstract number.

The multiplicand and product must be like numbers.

Either factor may be used as multiplier or multiplicand when both are abstract.

In practice, for convenience, the smaller number is generally used as the multiplier.

Rule for multiplying °, ′, ″, ‴.

Multiply the lowest denomination by the multiplier and if the product thus obtained exceeds 60 divide by 60 and set the remainder under the column multiplied and mark it with the proper sign, carrying the quotient to the next product obtained by multiplying, if any, otherwise set it down in the place for the next denomination to the left. Then, again multiply the next lowest denomination by the multiplier and to the product obtained add the quotient obtained in the first operation, and if the sum obtained exceeds 60 divide by 60 and set the remainder under the column multiplied and mark it with the proper sign, carrying the quotient as before indicated. This will take you to the column for degrees, provided you have been multiplying seconds and minutes. Multiply the multiplicand, which consists of degrees, by the multiplier and to the product add the quotient carried, and set the sum under the column multiplied, and mark it with the proper sign, which completes the operation; thus:

Find the product of 15° 17′ 10″ multiplied by 3.

15° 17′ 10″ (multiplicand.)
× 3 (multiplier.)

45° 51′ 30″ (product.)

Find the product of 58′ 59″ × 5

58′ 59″
× 5

290′ 60) 295″ (4′
+ 4′ — 240″

60) 294′ (4° 55″
— 240′

54′

Answer 4° 54′ 55″

Explanation: 5 multiplied by 59″ are 295″, which contains 60″ 4 times, or 4′, and 55″ over; write this remainder under the column for seconds and mark it ″; again 5 multiplied by 58′ are 290′ and the 4 carried over added to 290′ makes the sum of 294′, which contains 60′ 4 times, or 4°, and 54′ over, write this remainder under the column for minutes and mark it ′, writing the 4′ to the left of it: whence 58′ 59″ × 5 = 4° 54′ 55″.

Find the product of 13° 59′ 58″ multiplied by 3.

13° 59′ 58″
× 3

39° 177′ 60) 174″ (2′
+ 2° + 2′ — 120″

41° 60) 179′ (2° 54″
— 120′

59′

Answer: 41° 59′ 54″

Note.—Dividing the product by the multiplier produces the multiplicand.

Proof:

3) 41° 59′ 54″ (13°
—3
—
11°
— 9
—
2° = 120′
+ 59′
—
÷ 3) 179′ (59′
— 15
—
29′
— 27
—
2′ = 120″
+ 54″
—
÷ 3) 174″ (58″
— 15
—
24″
— 24″
—

Answer 13° 59′ 58″, the multiplicand.

Note.—Look this subject over carefully. Get familiar with the rules and the working forms of same. Don't forget that 60 is the basis in all this work, and that as soon as you get over 59 minutes or seconds, it is then something else. For instance, 15′ multiplied by 32 is 480′, or 8°, that is, 60′ is contained in 480′ 8 times, or, 8°.

Examples for practice; find the *product* in each case:

Multiply 11° 15′ by 32. Ans. 360°.
5° 37′ 30″ × 64. Ans. 360°.
2° 48′ 45″ × 4. Ans. 11° 15′.
2° 48′ 45″ × 3. Ans. 8° 26′ 15″.
2° 48′ 45″ × 2. Ans. 5° 37′ 30″.
5° 37′ 30″ × 2. Ans. 11° 15′.
1° 24′ 22″ 30‴ × 2. Ans. 2° 48′ 45″.
22° 30′ × 4. Ans. 90°.
11° 15′ × 8. Ans. 90°.
5° 37′ 30″ × 6. Ans. 33° 45′.
4 × 90° = 360°.
6 × 60° = 360° 12 × 30° = 360°.
2 × 180° = 360° 2 × 16 pts. = 32 pts.
32 × 11° 15′ = 360°. 16 × 22° 30′ = 360°
8 × 45° = 360° 8 × 4 pts. = 32 pts.

At a meeting of the Board of Directors of the Westinghouse Electric & Manufacturing Co., held Tuesday, April 10, Mr. L. A. Osborne, formerly third vice president of that company, was elected second vice president to succeed Mr. Frank H. Taylor, resigned. Mr. Taylor, who is also a director of the company, will retain his seat on the Board. Mr. Osborne as third vice president had the direction of the engineering and manufacturing activities of the company. As second vice president he will assume the direction of the commercial activities of the company while retaining those of the engineering department. The new second vice president is a graduate of Cornell University. He entered the employ of the Westinghouse Electric & Manufacturing Co. in 1891 and has successively held the positions of assistant superintendent, assistant to the vice president, manager of works, fourth vice president and third vice president.

Generated on 2024-08-30 17:59 GMT / https://hdl.handle.net/2027/mdp.39015043584393
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

COMMERCE OF LAKE SUPERIOR.

It has been said frequently in these columns that there is no adequate measure of the port to port commerce of the great lakes, and therefore no way of determining the total commerce of the great chain of waters. However, it is fair to assume that more than half of the commerce of the lakes passes through the canals at Sault Ste. Marie, and it is fortunate indeed that records at this point are very reliably kept by the officials in charge of the United States and Canadian canals. Gen. Supt. Joseph Ripley has just submitted to Col. Charles E. L. B. Davis for transmission to the secretary of war the exhaustive report of canal commerce for 1903 that is known as the mile-ton report. The report shows that $31,420,585 was paid as carrying charges to vessels that moved 444,270,680 net tons of freight through the canals in 1904, and that the total value of freight was $416,965,484. The cost per ton per mile of moving this freight was .85 of a mill against .81 of a mill in 1904, .92 of a mill in 1903, .89 of a mill in 1902 and against .99 of a mill in 1901.

The total freight traffic of 44,270,680 net tons for the season of 1905 when compared with the season of 1904 shows an increase of 40 per cent or 12,724,574 tons. The items showing an increase are coal, flour, wheat, grain, other than wheat, manufactured and pig iron, salt, iron ore, lumber and general merchandise. The total number of passengers was 54,204, an increase of 16,509 or 44 per cent. Vessel passages through both canals numbered 21,679, showing a gain of 5,559 or 34 per cent, from 16,120 passages in 1904. The total lockages number 13,792, a gain of 3,477 lockages or 34 per cent. The season of navigation continued for a period of 8 months and 10 days during which time the average monthly freight traffic was 5,312,482 net tons.

The traffic through the American canal was 88 per cent of the total freight and 52 per cent of the passengers carried, the amounts being 38,802,190 tons of freight and 28,401 passengers. Compared with the season of 1904 there was an increase of 12,284,274 tons of freight or 46 per cent, and an increase in passengers of 6,795, or 31 per cent. The American canal opened April 14 and closed Dec. 16, 1905, making the length of its season 246 days.

The traffic through the Canadian canal was 12 per cent of the total freight and 48 per cent of the passengers carried, the amounts being 5,468,490 tons of freight and 25,803 passengers. Compared with the season of 1904 there was an increase of 440,300 tons of freight or 9 per cent, and an increase of 9,714 passengers or 60 per cent. The Canadian canal was opened on April 10 and closed Dec. 20, 1905, making the length of its season 255 days. Following are some of the most interesting conclusions regarding the traffic of 1905:

Total mile-tons	36,892,797,973
Total net registered tons	36,617,699
Total freight carried, tons	44,270,680
Total valuation placed on freight carried	$416,965,484
Average value per ton of freight carried	$9.42
Total amount paid for freight transportation	$31,420,584.54
Average distance freight was carried, miles	833.3
Cost per mile per ton, mills	.85
Average cost per ton for freight transportation	$0.71
Total number of registered vessels using canals	910
Total number of passages by unregistered crafts carrying freight	729
Time American canal was operated, days	246
Time Canadian canal was operated, days	255
Total valuation placed on registered vessels	$78,640,300
Total number of passengers transported	54,204
Freight carried by—	
Registered vessels, tons	44,204,028
Unregistered vessels, tons	66,652
American vessels, per cent	95
Canadian vessels, per cent	5
Passengers carried by—	
American vessels, per cent	45
Canadian vessels, per cent	55

COMPARATIVE STATEMENT OF COMMERCE THROUGH THE CANALS AT SAULT STE. MARIE, MICHIGAN AND ONTARIO FOR THE SEASONS OF 1904 AND 1905.

ITEMS.	Traffic for 1905 U. S. Canal.	Canadian Canal.	Total Traffic for Season 1905	Season 1904
Steamers .... Number	12,218	4,979	17,197	12,188
Sailing ..... Number	3,021	242	3,263	2,994
Unregistered . Number	780	439	1,219	938
Total ..... Number	16,019	5,660	21,679	16,120
LOCKAGES.... ....Number	9,757	4,035	13,792	10,315
Tonnage:				
Registered ...Net	31,121,233	5,496,466	36,617,699	24,364,138
Freight .....Net tons	38,802,190	5,468,490	44,270,680	31,546,106
Passengers .....Number	28,401	25,803	54,204	37,695
Coal:				
Hard .....Net tons	941,763	42,938	984,701	991,228
Soft .....Net tons	4,621,032	903,323	5,524,355	5,463,641
Flour .....Barrels	4,052,805	1,719,914	5,772,719	4,710,538
Wheat .....Bushels	42,573,661	25,747,627	68,321,288	49,928,869
Grain, other than wheat .....Bushels	33,209,487	6,020,066	39,229,553	33,030,992
Manufactured and Pig Iron..Net tons	181,410	56,286	237,696	229,985
Salt .....Barrels	282,188	140,934	423,122	365,459
Copper .....Net tons	94,794	11,726	106,520	109,605
Iron Ore .....Net tons	28,408,076	2,924,561	31,332,637	19,635,797
Lumber .....M. ft. B. M.	935,548	31,258	966,806	923,280
Silver Ore .....Net tons	41	.....	41	1,356
Building Stone..Net tons	10,899	.....	10,899	27,093
General Merchandise .....Net tons	484,723	351,860	836,583	732,009

The number of registered vessels of 500 to 600 ft. in length using the canal in trade to and from Lake Superior was 23; of 400 to 500 ft. in length, 118; of 300 to 400 ft., 184; of 200 to 300 ft., 293; of 100 to 200 ft., 198, and of less than 100 ft. in length, 84. The records show that 517 different vessels in a single trip of each carried a total of 2,683,491 net tons. The maximum traffic for a single day was on June 19, when 300,752 freight tons passed through the canals on 148 vessels, having an aggregate registered tonnage of 233,429. The minimum traffic was on April 12, when two vessels registering 100 tons passed through the canals carrying no freight. On April 11, 13 and 16 there was traffic. The steamer Augustus B. Wolvin, of the Acme Steamship Co.'s fleet, is credited with having moved the largest amount of freight through the canal during the season, 274,401. The largest single cargo, 12,368 tons, was carried by the E. H. Gary. The Wolvin is also credited with the greatest number of mile-tons, 249,038,482. The steamer Duluth, of the Western Transit Co.'s fleet, has the greatest number of miles run to her credit, 41,374.

The following table will prove interesting as showing the distribution to other lakes of freight bound eastward from the Lake Superior and also the district from which freight bound to Lake Superior originated:

East Bound.	Net Tons.
From Lake Superior ports to—	
Lake Michigan ports	3,316,970
Lake Huron ports	1,182,208
Lake Erie ports	13,883,178
Lake Ontario ports	396,382
Total	36,778,738
West Bound.	Net Tons.
To Lake Superior ports from—	
Lake Michigan ports	42,651
Lake Huron ports	372,721
Lake Erie ports	6,970,998
Lake Ontario ports	105,572
Total	7,491,942

ESTIMATED VALUE OF TOTAL FREIGHT PASSING THE CANALS AT SAULT STE. MARIE, MICHIGAN AND ONTARIO FOR THE SEASON OF 1905.

ITEMS	Quantity	Price per unit	Valuation
Coal, Anthracite ...Net tons	984,701	$5.60	$5,514,326
Coal, Bituminous ..Net tons	5,524,355	2.75	15,191,976
Flour .....Barrels	5,772,719	5.20	30,018,139
Wheat .....Bushels	68,321,288	.90	61,489,159
Grain, other than wheat .....Bushels	39,229,553	.66	25,891,505
Manufactured Iron..Net tons	181,951	100.00	18,195,100
Pig Iron .....Net tons	55,745	15.65	872,409
Salt .....Barrels	423,122	.70	296,185
Copper (refined and matte) .....Net tons	106,520	285.00	30,358,200
Iron Ore .....Net tons	31,332,637	3.00	93,997,911
Lumber .....M. ft. B. M....	966,806	18.50	17,885,911
Silver Ore .....Net tons	41	55.00	2,255
Building Stone .....Net tons	10,899	12.00	130,788
General Merchandise Net tons	836,583	140.00	117,121,620
Total			$416,965,484

Generated on 2024-08-30 17:57 GMT / https://hdl.handle.net/2027/mdp.39015043584393
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

AMOUNT PAID FOR CARRYING FREIGHT THROUGH CANALS AT SAULT STE. MARIE, MICHIGAN AND ONTARIO FOR THE SEASON OF 1905.

ARTICLES		Quantity	Rate per unit	Amount
Coal	Net tons	6,519,056	$0.33	$2,151,288.48
Flour	Barrels	5,772,719	.14	808,180.66
Wheat	Bushels	68,321,288	.023	1,571,389.62
Grain, other than wheat	Bushels	39,229,553	.023	902,279.72
Manufactured Iron	Net tons	181,951	2.00	363,902.00
Pig Iron	Net tons	55,745	1.50	83,617.50
Salt	Barrels	423,122	.10	42,312.20
Copper	Net tons	106,520	1.25	133,150.00
Iron Ore	Net tons	31,332,637	.68	21,306,193.16
Lumber	M. ft. B. M.	966,806	2.45	2,368,674.70
Silver Ore	Net tons	41	2.00	82.00
Building Stone	Net tons	10,899	1.50	16,348.50
General Merchandise	Net tons	836,583	2.00	1,673,166.00
Total				$31,420,584.54

In connection with the forgoing table there is also the following summary of relative values of the different commodities passing through the canals:

	Per cent.
Coal (anthracite and bituminous)	4.97
Cereals (wheat, rye, oats, corn, barley, flax and flour)	28.16
Iron (iron ore, manufactured and pig iron)	27.12
Copper	7.28
Lumber	4.28
All other products	28.19
Total	100.00

TABLE SHOWING TOTAL FREIGHT, ITS VALUATION, FREIGHT CHARGES, AVERAGE HAUL OR DISTANCE FREIGHT WAS CARRIED, AND RATE PER TON PER MILE.

Year.	Total Freight, Net Tons.	Valuation of Freight.	Freight Charges.	Average Haul. Miles.	Freight Charges per mile-ton. Mills.	Value of American Craft.	Value of Canadian Craft.
1887	5,494,649	$79,031,757	$10,075,153	811.4	2.3	$17,684,550	$2,089,400
1888	6,411,423	82,156,019	7,883,077	806.4	1.5	20,381,100	1,514,300
1889	7,516,022	83,732,527	8,634,246	790.4	1.5	25,328,600	1,597,600
1890	9,041,213	102,214,948	9,472,214	797.2	1.3	27,857,700	1,777,800
1891	8,888,759	128,178,208	9,849,022	820.4	1.35	31,947,300	2,119,500
1892	11,214,333	135,117,267	12,072,850	822.4	1.31	36,220,100	2,108,700
1893	10,796,572	145,436,957	9,957,483	831.9	1.1	39,017,400	2,115,700
1894	13,195,860	143,114,502	10,798,310	821.1	.99	41,124,200	1,959,800
1895	15,062,580	159,575,129	14,238,758	830.0	1.14	40,858,800	2,037,000
1896	16,239,061	195,146,842	13,511,615	836.4	.99	43,006,200	2,135,300
1897	18,982,755	218,235,927	13,220,099	841.3	.83	42,375,700	2,001,400
1898	21,234,664	233,069,740	14,125,896	842.6	.79	45,199,800	2,491,900
1899	25,255,810	281,364,750	21,959,707	827.2	1.05	65,000,520	3,369,600
1900	25,643,073	267,041,959	24,953,314	825.9	1.18	66,116,583	3,618,576
1901	28,403,065	289,906,865	23,217,974	823.3	.99	57,244,200	3,311,900
1902	35,961,146	358,306,300	26,566,189	827.4	.89	67,205,000	3,792,400
1903	34,674,437	349,405,014	26,727,735	835.6	.92	68,252,800	6,384,500
1904	31,546,106	334,502,686	21,552,894	843.5	.81	63,789,300	5,377,100
1905	44,270,680	416,965,484	31,420,585	833.3	.85	73,211,300	5,429,000

The American canal records show that vessels necessarily spent 24,098 hours and 57 minutes in the canal, or an average of 1 hour, 39 minutes and 37 seconds, which includes time waiting for lockage and passage through locks and canal, the latter being 1 3-5 miles long. Other delays at canal which included taking on supplies, waiting for daylight or favorable weather, amounted to 13,656 hours and 55 minutes. Delays to vessels due to operating railway swing bridge amounted to 6 hours and 21 minutes. Trains were delayed 64 hours and 20 minutes by passing boats, temporarily preventing the closing of the bridge. The aggregate time the railway swing bridge was swung across the canal amounted to 929 hours and 15 minutes, during which time 3,460 engines, 5,292 passenger cars and 34,521 freight cars crossed the bridge.

The American canal post office delivered 170,714 pieces of mail during the season, consisting of 148,502 letters, 13,223 postals, 7,772 newspapers and 1,217 parcels; also returned 1,011 pieces to the city post office after being held 30 days uncalled for, and forwarded 2,397 pieces to new addresses. As compared with last year, this shows an increase of 50,309 pieces of mail.

NEW YARROW MOTOR BOAT.

Messrs. Yarrow & Co., have just turned out from their works an interesting craft driven by petrol motors, and which might be termed a second-class torpedo-boat, 60 ft. in length by 9 ft. beam. This motor boat has excellent sea-going qualities—as good as can be expected from a craft of such dimensions. It is strongly built and cannot be looked upon in any sense as coming under the category of a "racing boat," which is generally built simply to win a race and then possibly collapse. The launch in question is a thoroughly practical craft, and in every respect quite as durable as a second-class torpedo-boat, which, up till now has been fitted with steam machinery. The machinery in this launch consists of three sets of Yarrow-Napier internal combustion engines, driving three screws, each of the two outer propellers are driven by engines of about 120 H. P., and the center propeller is driven by an engine of 60 H. P. The two outer propellers are only capable of going ahead while the central engine can be reversed, it being considered that this amount of reversing power is amply sufficient. These machines are constructed under license from Messrs. Napier & Edge.

On a series of trials the speed (light) has been found to be 25½ knots, which, for a boat of these dimensions and strength, is unprecedented. The best speed that could be obtained under the same conditions with steam would be 20 knots, showing an advance of 5½ knots. This increased speed is no doubt due to more than one cause. Firstly, the much lighter weight of the machinery of the internal-combustion type as compared with steam, probably the saving in weight is 50 per cent; secondly, the form of hull, which at these extreme speeds, for the displacement of a boat of this type, seems to enable it to rise on the surface of the water, and as it were to some extent slide on the surface. This is made evident by the small surface disturbance of the water, which is very remarkable. Thus the portion of the power which is usually expended in procuring surface disturbance, or what is called "wave-making," is utilized for propulsion. If such a launch be fitted with torpedoes, it certainly does appear to be eminently adapted for the defence of a port or a coast; and it may well be a question whether a certain amount of money would not be more advantageously expended in obtaining a large number of such craft rather than a few vessels of larger size. For example, the cost of one modern destroyer is equal to about fifteen such torpedo launches as described; and for the purpose of defending a port from an attacking or blockading fleet there cannot be a second opinion that fifteen small vessels of high speed which it would be difficult to hit, offer a much greater means of defence than one destroyer of large size, unprotected, upon which the fire of a number of guns could be concentrated.

Crawford & Reid, Tacoma, Wash., launched a steamer last week for Moe Bros., of Seattle. The steamer is 135 ft. long.

Plans for a new steel harbor boat to cost $60,000 have been prepared by the city of St. Louis.

Generated on 2024-08-30 18:01 GMT / https://hdl.handle.net/2027/mdp.39015043584393
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

TOWING THE DRY DOCK DEWEY.

Frederick S. McMurray, chief officer of the dry dock Dewey has written the following interesting letter to Commodor G. C. Hanus of the school ship St. Mary's of the experience in towing the Dewey across the Atlantic:

UNITED STATES DRYDOCK DEWEY.

At Sea, February 9, 1906.

Latitude 29 deg. 23 min. Longitude 30 deg. 23 min.

We have had quite an eventful passage, having broken adrift three times so far, and experienced three gales of wind. We steered southeast from Cape Henry until reaching latitude 28 deg., then east along that parallel, or as near to it as circumstances allowed, to longitude 33 deg. W., when we ran for Las Palmas for coal and water for the dock. Our best day's run was 106 miles to the eastward and our poorest 45 miles to the westward. We were adrift 36 hours in one blow which carried us 105 miles to the northward, after which we connected only to break adrift within a couple of days and were carried 40 or 50 miles southwest by another blow.

The towing machines have suffered on the Brutus. In each case the 2½-inch wire hawsers parted, the manila holding though badly chafed and one part having stranded. Upon breaking adrift the second time a chain bridle was passed over the Brutus's stern and rove through a shackle at her end of the hawser. This bridle parted within 48 hours. We then gave a line from aft and have since been towing the dock stern first (if such can be said of a dock.) As it is square at the ends without overhang of any kind, consequently tows unkindly. Its tendency is to take everything broadside on, and tows thus in a heavy breeze and sea, no matter how trimmed.

Our towing gear consisted of a chain bridle 45 fathoms on each leg, to which were shackled two doubled lengths of 15-inch manila hawser 100 fathoms in length each. From the farther end of the manila a wire hawser led to the towing machine on the Brutus. The two parts of the manila line were seized together at every fathom to prevent kinks. A chain bridle and 100 fathoms length of manila were fitted to each end of dock, the after section now being in use, while the remains of the forward gear is being overhauled on the dock floor. The mooring bits, two double sets at each end, are on the dock floor, 16 in all. We have a windlass in the center of the dock controlling two stockless anchors at each end of dock. When I joined the Dewey she was moored with eight mushrooms which we now have lashed on board.

At the present time we average 2½ miles per hour in good weather, and our past experience makes us cautious with the towing gear. In the blow referred to we drifted 3½ miles an hour, our high sides and 8-foot draft causing this great leeway.

We are very steady in a seaway, though roll considerably, the maximum being 12 degrees in a very high sea. The roof is too high for even a spray, and very little water was shipped over the sills of the dock, what did come in having exit through pontoons. We were straining somewhat during the last blow, but have relieved that by means of fish plates between connections.

We have thirty-two men aboard, eleven of whom are seamen. Boatswain Mullen, U. S. N., is in charge of the towing apparatus, my duties being those of navigator and watch officer. I had no difficulty in placing the compass, starboard side aft, as the dock was built head west. The maximum deviation is seven degrees, uncompensated except by quadrantal correctors. We seldom head toward the towing ships and get our course by signal. With a fresh beam wind the dock gives the entire flotilla nearly a point leeway at times.

I have become quite expert with the Ardois and wigwag code, the dock being fitted with Ardois lights. I would strongly recommend our boys learning the wigwag, which is extensively used in the collier service. While adrift and with ships maneuvering to pick us up by buoyed lines, etc., it was of great service. The first officer of the Brutus, Merriwether, also the second, Stay, are graduates of the St. Mary's and will join the alumni association. Nash, also a graduate of the St. Mary's, is third officer of the Cæsar.

We live very well on the dock and have comfortable quarters in the side walls, which have been fitted with staterooms, crew's quarters, storerooms, and machine shops and dynamo room on starboard side, and storerooms, firerooms, pumping machinery on port side. There were no deck houses except a lever house on the port side, so we built a signal house and wireless telegraph station to starboard, which add greatly to our comfort in bad weather and in which I work out my sights.

FREDRICK S. MCMURRAY,
Chief Officer Drydock Dewey.

BRITTANIA IS HER NAME.

Brittania is the name selected for the new steamer now building at Wyandotte for the Detroit, Belle Isle & Windsor Ferry Co. This new steamer is 180 ft. long over all, 164 ft. between perpendiculars, 45 ft. breadth of hull, 42 ft. on the water line and 56 ft. over guards, 17 ft. 6 in. depth and 12 ft. draught. Her engines are of the triple expansion type, 20, 32 and 50-in. cylinder diameters by 36-in. stroke, supplied with steam from two Scotch boilers, 13 ft. 2 in. diameter and 12 ft. long. Her passenger capacity will be about 2,700 persons. She will have a water bottom and her hull will be divided into six watertight compartments. Her main deck and deck houses will be constructed of steel. Mr. J. G. Mullen, Detroit River representative of the Pittsburg Coal Co., secured the prize offered by the steamship company for naming the steamer. The name is especially appropriate and is intended as a compliment to the Canadian patrons of the line.

CONTRACT FOR ANOTHER STEAMER.

The Great Lakes Engineering Works at Detroit closed contract with Wallace Bros. of Detroit for a freight steamer to be 440 ft. long over all, 420 ft. keel, 52 ft. beam and 28 ft. deep. She will have a carrying capacity of 6,500 tons of ore and will be a duplicate of the W. G. Pollock and the Joshua Rhodes, building for W. H. Becker of Cleveland by the American Ship Building Co. The Wallace Bros. at present own the wooden steamer W. B. Morley. The new vessel will come out late in the season.

Chief Engineer Kelly of the steamer Spokane of the Wilson Transit Co.'s fleet, was seriously hurt last Saturday night while making repairs to the machinery, as the steamer lay at Smith's coal dock in the Detroit river. He fell into the pit, a distance of about six feet, and was taken to the hospital.

The new fog signal station at Waukegan, located at the end of the south pier, will go into operation shortly, completing the line of fog signals along the west shore and will be a great protection to vessels coming up the lake in thick weather.

The steamer Wm. A. Paine which left Lake Erie for Lake Superior last week, damaged her wheel bucking the ice in St. Mary's river. She will be repaired at the head of the lakes.

Generated on 2024-08-30 17:59 GMT / https://hdl.handle.net/2027/mdp.39015043584393
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

THE MARINE REVIEW

DEVOTED TO EVERYTHING AND EVERY INTEREST CONNECTED OR ASSOCIATED WITH MARINE MATTERS ON THE FACE OF THE EARTH.

Published every Thursday by

The Penton Publishing Company

CLEVELAND.

CHICAGO: MONADNOCK BUILDING.
PITTSBURG: PARK BUILDING.
NEW YORK: 150 NASSAU STREET.

Correspondence on Marine Engineering, Ship Building and Shipping Subjects Solicited.

Subscription, $3.00 per annum. To Foreign Countries, $4.50. Subscribers can have addresses changed at will.

Change of advertising copy must reach this office on Thursday preceding date of publication.

The Cleveland News Co. will supply the trade with the MARINE REVIEW through the regular channels of the American News Co.

European Agents, The International News Company, Breams Building, Chancery Lane, London, E. C. England.

Entered at the Post Office at Cleveland, Ohio, as Second Class Matter.

APRIL 19, 1906.

THE SHIPPING BILL.

During the past week a most important hearing has been held in Washington on the shipping bill now before congress. As will be noted elsewhere in this paper, testimony of most extraordinary weight was submitted to the committee on merchant marine and fisheries, which has this bill in charge. In addition, Mr. Harvey D. Goulder of Cleveland, president of the Merchant Marine League of the United States, in company with Representative Humphrey saw President Roosevelt and convinced him of the immediate necessity of action, if the American flag is to be seen on the high seas. It is well known that while Secretary Taft has opposed certain measures extending the privileges of American shipping in the Philippine trade, he is convinced of the necessity of action to restore shipping generally in the foreign trade. Secretary Taft as the head of the war department knows how futile it would be to attempt to assemble troops over sea in case they should suddenly be needed. There are not enough American ships in existence to mobilize an effective force in the Philippines, and what ships there are now available may not be available a few months hence, if certain plans of the Japanese government are carried out. It is understood that a few of the larger vessels of the Pacific coast are now under option of the Japanese government.

Important testimony was submitted to the committee on merchant marine by Mr. E. H. Gary, chairman of the board of directors of the United States Steel Corporation. Mr. Gary did not think that foreign shipbuilders have any advantage over American shipbuilders in the price of steel. He denied emphatically that the United States Steel Corporation had sold steel abroad for less than it could be purchased in this country, stating that the corporation had sold no steel whatever abroad in 1905 and only 4,000 tons in 1904. He also added that practically one-twelfth of the production of the Steel Corporation is sent to foreign markets and that export prices are rarely lower than domestic prices. He showed very clearly that the great market of the United States is the home market and that both manufacturer and farmer have about all that they can do to supply consumption at home. In a very little while, indeed, the United States will have no grain to export, so rapidly is the country growing and so great is the demand for food product. Judge Gary was of the opinion that the tariff on steel did not handicap the American shipbuilder because all materials intended for ship construction are admitted duty free. Moreover, Germany and Belgium are very aggressive in competing with the United States and occasionally use the United States as a dumping ground for their surplus products.

Mr. Edwin S. Cramp revealed the real reason for the excess cost of ship construction in the United States. He admitted that as far as material was concerned the American builder was on a parity with the European builder, but that he had to pay almost double the wages that were paid abroad. Mr. Cramp stated that labor represented practically two-thirds of the cost of a vessel. He made the point that congress had not only done nothing for the shipbuilder since 1891, but had really tried to exterminate the merchant marine in the foreign trade. This statement is literally true. The merchant marine is suffering from the handicap imposed upon it by congress. It is compelled to operate under most adverse conditions; it has got to find employment for a costly ship with a costly crew in competition with a low cost ship operated at low wages. It simply cannot earn any money on the added cost of construction, let alone the added cost of operation. Mr. Cramp was of the opinion that if the shipping measure were enacted into law, it would not only greatly increase the amount of foreign trade in American bottoms, but furnish employment to fully 15,000 men in the shipbuilding industry. Indeed, if this law is passed, it is almost certain that orders will be placed immediately with the shipyards of the United States for a hundred steamers. If it is not passed, shipbuilding and shipping must inevitably languish. There is no hope for an American merchant marine until conditions are equalized by congressional action. The shipyards of the coast are being kept alive with warship construction. But

Generated on 2024-08-30 17:55 GMT / https://hdl.handle.net/2027/mdp.39015043584393
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

what is the use of building warships if there is no merchant marine? What is the use of building warships if you have not an effective personnel to man them? Persons are not born with a knowledge of the sea; they have to acquire it through experience. The only place where they can acquire it is on a merchant ship. The merchant marine is the real cradle of the navy. If the present condition is permitted to continue, the United States will some day pay hundreds of millions to remedy what could now be very readily remedied by the mere diversion of tonnage taxes to American ships as provided in the bill now before the committee on merchant marine.

AROUND THE GREAT LAKES

The steamer Wm. Livingstone was the first grain carrier to reach Buffalo.

The first Anchor line steamer left Cleveland for upper lake ports on April 18.

Sealed proposals will shortly be solicited for the sale of the lighthouse tender Haze.

The Buffalo Dredging Co. has started work for the season in the Buffalo river.

Corrigan, McKinney & Co., have sold the schooner Marian W. Page to Buffalo parties.

The steamer Socapa was the first coal carrier to reach Duluth, arriving at noon Tuesday.

The steamer Umbria which went aground in St. Marys river Friday was released on Tuesday.

Capt. Thomas Fitzsimmons, of Detroit avenue, Cleveland, who has sailed the lakes all his life, has retired.

Capt. W. D. Ames of Cleveland has resigned as master of the steamer Hoover & Mason of the Tomlinson fleet.

Navigation was opened at Menominee, Mich., on April 11 by the arrival of the tug S. M. Fischer towing two car ferries.

The steel steamer Wm. A. Rogers with a cargo of coal aboard was the first steamer to pass the Straits of Mackinaw.

The steamer L. C. Waldo, which ran aground near Bois Blanc island last week, will go into dry dock at South Chicago.

The Canada Atlantic Transit Co. has bought the package freight steamer Kearsarge from Pickands, Mather & Co., of Cleveland.

A revised chart in colors of Lake Michigan has just been issued by the United States lake survey office and is for sale by the MARINE REVIEW.

The season of navigation at Milwaukee was opened on April 11, with the departure of the steamers Robert Wente, Gilbert and Selwyn Eddy.

The freight steamer J. Pierpont Morgan, building at the South Chicago yard of the American Ship Building Co. for the Pittsburg Steamship Co., will be launched April 28.

The first of the two package freight steamers building for the Rutland Transit Co. at the Cleveland yard of the American Ship Building Co., will be launched on Saturday next.

The Maryland Steel Co., Sparrow's Point, Md., received last week the gold medal which was awarded at the Louisiana Purchase Exposition for the best exhibition of floating docks.

The Cleveland & Buffalo Transit Co. opened navigation between Cleveland and Buffalo on Monday night last and it will now be continued without interruption until December next.

The wrecking tug Favorite of the Great Lakes Towing Co. has been thoroughly overhauled and will be stationed at St. Ignace this season. Capt. Alex. Cunning will be in command of her.

The steamer R. W. England which has been in dry dock No. 1 at the head of the lakes repairing the injuries which she received in the November storm, is now out and the steamer Western Star has taken her place.

The barge Constitution, owned by Pickands, Mather & Co., of Cleveland, collided slightly with the Interstate bridge on the Minnesota approach while coming from the Missabe docks at Duluth in tow of tugs. No serious damage was done.

Formal application has been made by the Goodrich line for permission to change the name of its newly acquired steamer Charles H. Hackley to Carolina. As the steamer is undergoing extensive repairs, the change in name will doubtless be allowed.

The Anchor line fleet during the present year will consist of the following vessels: Muncy, Delaware, Tionesta, Juniata, Susquehanna, Mahoning, Codorous, Schuylkill, Clarion, Lehigh, Wissahickon, Conemaugh, Alaska, India and Japan.

The steel steamer Sevona which stranded on Sand Island Shoal, Lake Superior, last fall, is reported by fishermen to have been completely destroyed by ice during the winter. The Reid Wrecking Co. had a contract to recover the vessel.

The steering gear of the steel steamer Paney became deranged at the head of the St. Clair river and she began to swing in the current. By excellent management the steamer was controlled sufficiently to prevent grounding on the bar at that point and she was brought abreast with the Lynn reporting office.

Capt. Fred A. Bradley, Buffalo, has sold the barge George H. Warmington to F. E. Hall, to be used in the lumber trade. Capt. Bradley recently sold the steamer Wm. H. Sawyer and barges A. C. Tuxbury and C. E. Redfern to the Edward Hines Lumber Co. of Chicago, and also the steamer Denver to the Ogdensburg Coal Co.

The steamer Grandon took the first cargo of limestone away from Kelly Island with the barge Alpha on April 2 for the Kelly Island Lime & Transport Co. This steamer and barge also opened the stone trade of Marblehead for 1906, breaking her way through the ice to Sandusky to supply the kilns at that place.

The steamers Mary Groh and Myrtle Ross and the Schooner Thomas Howland, belonging to the wrecking fleet of the Port Huron Wrecking Co. which were working on the wreck of the steamer Linden and were carried down stream by the ice flow, are safe behind the old wreck of the steamer Paxton about a mile below Algonac and are not damaged to any extent.

Owing to the strike of tug firemen and linesmen in Chicago, Capt. C. H. Westcott, United States supervising inspector of vessels for the eighth district, was compelled to assume the role of tug captain while in Chicago last week, inspecting vessels. Capt. Ira B. Mansfield, local inspector of hulls at Chicago, took the wheel and Roy L. Peck, local inspector of boilers, had charge of the engine room.

Capt. George B. Mallory, who was fined $1,000 on the report of the steamboat inspector at Port Huron on the charge of failing to stand by and lend assistance to the steamer Etruria when that vessel was in collision with the steamer Amasa Stone, has received a letter stating that the department of commerce and labor has found him not guilty of the charge. The fine has accordingly been remitted.

Generated on 2024-08-30 17:59 GMT / https://hdl.handle.net/2027/mdp.39015043584393
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

APPOINTMENTS OF MASTERS AND ENGINEERS.

GILCHRIST TRANSPORTATION CO., CLEVELAND, O.

Vessel.	Captain.	Engineer.
Bge. Antrim	Ed. Lohr	Wm. Marshall
Str. Case	George White	F. Hawthorne
Str. City of Genoa	M. H. Clark	Walter Patterson
Str. City of Naples	Chas. Caughell	Lewis Fittinger
Str. City of Rome	Paul Gutch	Marcus Hill
Str. Colonial	Arnold Evenson	Nelson Lockhart
Str. Cumberland	Sam Minskey	Wm. J. Nolan
Str. Eddy	D. B. Elsey	S. E. Maybury
Str. Elphicke	Joe Dobson	Charles Tyler
Bge. Georger	Henry Elbe	
Str. Gilchrist	Ed Mooney	W. T. Schwacofer
Str. Gilchrist, J. C.	A. M. Shepard	John Parks
Str. F. W. Gilchrist	Chas. Hinslea	Henry Jesson
Str. C. C. Hand	C. S. Ellis	H. W. Barden
Str. John Harper	J. S. Jones	A. L. Millet
Str. F. W. Hart	R. J. Walder	John Fritz
Str. F. J. Hecker	C. T. Gunderson	A. L. Hatch
Str. Helena	Nelson Brown	J. A. Southgate
Str. Hiawatha	George Dupuie	H. J. Balfour
Str. R. L. Ireland	J. P. Minskey	C. N. Albee
Str. Jupiter	J. B. Lyons	C. J. Erickson
Str. Lake Shore	Duncan Buie	George Zanger
Str. Lansing	———	F. O. Burrows
Bge. Magnetic	F. E. Johnson	
Str. Mars	John Smith	Porter Robertson
Str. Massachusetts	Fred Hassenflue	George B. Eaton
Str. Maytham	Frank Ott	Peter Shackett
Str. Mecosta	M. J. Madden	John Conley
Str. Merida	Pierre Bouille	James Balfour
Str. Merrimac	Andrew Cowie	Frank Ouellette
Str. Neosho	C. C. Stewart	Peter Britz
Str. Neptune	F. A. Dupue	Wm. Brake
Str. Neshoto	John Dunn	August Dumar
Str. Alex. Nimick	Frank Bertrand	D. M. Foster
Str. Oglebay	Stanton Markle	Thos. Harringer
Str. Olympia	A. W. Holmes	Peter LeMar
Str. F. M. Osborne	Alex Clark	R. D. Maybury
Str. R. R. Rhodes	W. H. Stern	Roman Shinsky
Str. George H. Russel	Charles Hahn	John Maher
Str Saturn	W. H. Landgraf	David L. Brown
Str. Schuck	F. A. Goodell	Joseph Berney
Str. John Sherwin	W. G. Stewart	———
Str. Sill	J. C. Byers	Thomas Burns
Str. Steel King	W. F. Delaney	Bert Beauchamp
Str. Tacoma	John Lohr	J. G. Fowler
Str. C. Tower	F. S. Ellis	Otto Elsholz
Bge. Tyrone	George Richards	W. D. McLea
Bge. Twin Sisters	A. J. Monroe	
Str. Uranus	A. M. Williams	T. F. Birch
Str. Venus	Benson Fox	Martin Mitchell
Str. Vermillion	B. F. Ogden	T. F. Higgins
Str. Volunteer	Richard Call	Daniel Flint
Str. Vulcan	S. E. Philp	Robert Dornan
Str. P. G. Whalker	Ben Mosher	John Seymour
Wallula	A. D. Vorce	C. T. Martin
Str. C. W. Watson	C. L. Cudeback	L. J. Manion
Str. J. L. Weeks	Peter Full	R. H. Reynolds
Str. D. C. Whitney	L. Miskin	James R. Engert
Str. D. M. Whitney	W. C. Butts	C. A. Francombe
Str. George Williams	H. Bennett	Charles Burns
Str. J. B. Wood	E. L. Ennes	H. L. Mitchell
Str. Lewis Woodruff	Thomas Gibson	A. MacLaren
Str. A. P. Wright	B. McGregor	Philip C. Mayer
New Boat	———	T. A. Francombe

H. N. LOUD, AU SABLE, MICH.

Bge. John B. Ketcham	Martin Christy	Clark Ford
Bge. Kongo	Chas. E. Barnes	A. W. Carlisle
Bge. Badger State	W. J. Jock	Chas. Schromock
Schr. Edward Kelly	H. E. N. Tracy	

A. BOOTH & CO. (UNITED STATES & DOMINION TRANSP. CO.) CHICAGO, ILL.

Str. America	Jacob Hector	J. McMillan
Str. Soo City	Benjamin Lewis	Fred Lee
Str. Easton	A. Clauson	James Evans
Str. Mabel Bradshaw	Edward Smith	Frank Bell
Str. Caribou	J. L. Baxter	Joseph Crawford
Str. Manitou	Arthur Batten	Robert Greerson

CROSBY TRANSPORTATION CO., MUSKEGON, MICH.

Str. Nyack	J. F. Cavanaugh	Carl Hallberg
Str. Naomi	Thomas Traill	B. J. Hopkins

MITCHELL & CO., CLEVELAND, O.

Vessel.	Captain.	Engineer.
Str. Loftus Cuddy	Chas. B. Galton	Wm. J. Fritz
Str. Joseph Sellwood	R. C. Jackson	Charles J. Lowe
Str. Stephen M. Clement	H. H. Townsend	Wm. F. Sauber
Str. Pendennis White	Fred Furtaw	F. B. Parker
Str. F. H. Goodyear	H. A. Stewart	I. A. Francombe
Str. Moses Taylor	Fred D. Galton	John D. Riley
Str. James Gayley	M. M. Stewart	John Maedel
Str. Wm. H. Gratwick	John D. Baird	Wm. Zuehlke
Str. J. J. Albright	J. W. Autterson	Peter Lavely
Str. Wm. E. Reiss	Wm. J. Tomlin	Louis Minnie
Str. E. A. S. Clarke	James B. Lowe	Otto Guy
Str. M. A. Hanna	R. O'Connor	John Ward
Str. H. S. Holden	G. E. Anderson	John Scott
Str. Walter Scranton	F. R. Hemenger	Henry Graves
Str. Lagonda	Ed. Johnston	Wm. L. Long
Str. J. J. McWilliams	Martin Walle	Gus Guy
Str. Major	Walter Rouvel	Frank Hiller
Str. Robert L. Fryer	Stephen Roe	John Wellhousen

W. A. HAWGOOD & CO., CLEVELAND, O.

Str. Edwin F. Holmes	James Owen	John Chapman
Str. Bransford	J. W. Montgomery	G. H. Charlton
Str. J. M. Jenks	J. F. Ahlstrom	George F. Robin
Str. Harold B. Nye	Ralph Nutting	Frank Randall
Str. Abraham Stearn	L. A. Rand	Alex. B. Wilson
Str. Henry B. Smith	C. C. Balfour	Thomas Braund

HENRY A. HAWGOOD, CLEVELAND, O.

Str. Harvey D. Goulder	George Robarge	Wm. Stewart
Str. H. B. Hawgood	George McGarry	S. H. Roswell
Str. S. S. Curry	J. Hollingshead	R. B. Buchanan
Str. Wisconsin	J. D. Green	John W. Lowe
Str. Umbria	O. J. Soleau	Anthony Ward
Str. J. Q. Riddle	C. M. Saph	George Smith

JAMES REID, SARNIA, ONT.

Str. Manistique	John E. Cooper	M. Jameson
Tug Ottawa	J. T. Reid	W. King
Tug James Reid	H. B. Reid	Wm. Oakes
Tug Winslow	A. Harris	John Skagel
Tug Salvor	Charles Hill	James Rushford
Tug Sarnia	James Rigney	John Taylor
Tug J. M. Diver	W. H. Reid	Fred Rawson
Schr. Kelderhouse	A. D. McLean	
Schr. Belle Hanscomb	L. McParland	

D. W. MILLS, CLEVELAND, O.

Str. Nelson Mills	Dan Warwick	E. J. Moore
Schr. Alex. Anderson	J. K. Edwards	
Schr. Biwabic	H. S. Hughes	

CHARLEVOIX LUMBER CO., CHARLEVOIX, MICH.

Str. Pine Lake	J. E. Jacobson	Harvey Campbell

MILWAUKEE SAND & GRAVEL CO., MILWAUKEE, WIS.

Str. Ellen	M. Dailey	Julius Schroeder
Str. John Roberts	A. Warrender	F. Troegel

GEORGE HALL COAL CO., OGDENSBURG, N. Y.

Str. John C. Howard	D. Hourigan	A. E. Cline
Str. John Rugee	R. Fitzgerald	E. A. Backe
Str. Henry B. Hall	S. V. Anderson	Wm. J. Brown
Str. Hecla	W. A. Russell	R. G. Jardin
Tug Wm. L. Proctor	Joseph Richard	James W. Foster
Schr. W. A. Sherman	Matt. Hourigan	
Schr. Mary Lyon	S. LaFlam	
Schr. Jennie Matthews	F. D. Lurn	
Schr. E. F. Beals	H. Newhouse	
Bge. Argosy	S. H. Dixon	

J. P. HARROW, ALGONAC, MICH.

Schr. Nelson Bloom	J. P. Harrow	

F. E. BALDWIN, PETOSKEY, MICH.

Schr. Ada Medora	M. Abrahamson	

EDWARD BUCKLEY, MANISTEE, MICH.

Str. Edward Buckley	Chas. Gnewuch	Ernest Smith

CHICAGO, SAUGATUCK & DOUGLAS TRANSIT CO., SAUGATUCK, MICH.

Str. Saugatuck	Wm. Turnbull	Samuel Shaer

Generated on 2024-08-30 17:55 GMT / https://hdl.handle.net/2027/mdp.39015043584393
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

GRAND TRUNK RAILWAY CO., WINDSOR, ONT.

Vessel.	Captain.	Engineer.
Str. Lansdown	F. D. Forrest	Joseph F. Taylor
	John Jackson	
Str. Great Northern	Mike Bausetto	Wm. Belsom
	Alex Baillargeon	
Str. Huron	Henry Oldenberg	Joseph Ladds

O. W. BLODGETT, BAY CITY, MICH.

Str. C. H. Bradley	James Bennett	R. C. Speir
Str. Zillah	Geo. H. Phelps	James Speir
Str. Myron	T. H. Moore	A. J. Wilcox
Schr. Mary Woolson	L. D. Bennett	
Schr. Brightie	H. G. Keenan	
Schr. Peshtigo	F. Dettman	
Schr. Delaware	Wm. R. Young	
Schr. B. W. Jenness	John Thurston	
Schr. Goschawk	James Gordon	
Schr. Nellie Redington	Wm. Keenan	

J. A. CALBICK & CO., CHICAGO, ILL.

Str. P. J. Ralph	John Evans	————
Str. Kalkaska	Gus. Gunderson	————
Str. Prentice	Robert Evans	————
Str. C. B. Packard	C. B. Packard	————
Bge. Connelly Bros.	Carl Johnson	
Bge. Harold	Harry Hagenson	
Bge. Halsted	John Lundberg	
Bge. R. L. Fryer	Emil Christen	

G. A. BOECKLING, SANDUSKY, O.

Str. A. Wehrle, Jr.	John Hess	Fred Stein
Str. R. B. Hayes	Henry Witcher	Otto Stein
Str. Bell	Jay Wheeler	————

MARINE TRANSIT CO., MARINE CITY, MICH.

Str. Toltec	James Taylor	Amos Horton

PAUL H. HOEFT, ROGERS CITY, MICH.

Str. C. H. Starke	Wm. J. Crosby	John Lacey

MICHIGAN SALT TRANS. CO., MILWAUKEE, WIS.

Str. Pere Marquette 3	H. L. Sanders	E. S. Hinline
Str. Pere Marquette 4	John Stufflebeam	W. Recordan
Str. Pere Marquette 6	Ed. Skeels	A. R. Randell

IONIA TRANS. CO., DETROIT, MICH. E. L. THOMPSON, MNGR.

Str. Ionia	Wm. McLean	Bernard Wood

JOHN SHEA, DULUTH, MINN.

Tug Crosby	John Shea	T. Jones

JOHN SMITH, MANISTEE, MICH.

Str. Helen C	J. H. Madden	Richard Winkler

H. E. RUNNELS, PORT HURON, MICH.

Schr. Favorite	L. Sinclair	
Schr. E. E. Tyson	C. W. Annis	

GEORGE OWEN, ASHTABULA, O.

Str. Jennie E. Smith	F. E. Nettleton	————
Str. Stephen Chase	D. W. Nettleton	————

SHANNON & GAREY, SAGINAW, MICH.

Str. Robert Holland	Joseph Lennan	George B. Kelley
Str. Homer Warren	F. C. Garey	Elvin Van Lew
Bge. Exile	John Trudo	
Bge. White and Friant	James Hall	
Bge. Ida Keith	Robert Rabbideau	
Bge. Wm. Crosthwaite	John Mattison	
Bge. T. H. Cahoon	T. B. Garey	
Bge. B. B. Buchont	Peter Trudo	

PORT HURON & SARNIA FERRY CO., PORT HURON, MICH.

Str. O. D. Conger	Wm. S. Major	Wm. Waugh
Ferry Hiawatha	Ed. M. Thomas	John Lee
Ferry Grace Dormer	George Waugh	John Kinirie
Ferry James Beard	P. Ekbert	————

BELKNAP & PHILLIPS, ST. CLAIR, MICH.

Str. Maud	Chas. Weitzman	George Etsell
Str. C. Hickox	No appointments	

JAMES A. MADIGAN, BUFFALO, N. Y.

Str. Canisteo	Jas. A. Madigan	Joseph R. Hall
Bge. A. A. Carpenter	John Mason	
Bge. Myron Butman	John Burke	

WM. MUELLER CO., CHICAGO, ILL.

Vessel.	Captain.	Engineer.
Str. Mueller	Capt. Ed. Fitch	G. G. Randall
Schr. Butcher Boy	Harry Woerpel	

R. P. THOMPSON, PORT HURON, MICH.

Tug George R. Hand	R. P. Thompson	George Lenox

J. G. KEITH & CO., CHICAGO, ILL.

Str. Parks Foster	John Isbester	M. Crisp

R. J. DUNHAM, CHICAGO, ILL.

Str. Ravenscraig	Wm. Anderson	E. B. Purvis
Str. City of London	Arnold Green	Ernest Narjal
Str. Black Rock	H. F. Hansen	Frank Reilly

JAMES O'CONNOR, TONAWANDA, N. Y.

Str. Lycoming	Wm. J. Hayes	Lawrence Brown
Bge. J. I. Case.	Hugh O'Hagan	

TONAWANDA BARGE LINE, TONAWANDA, N. Y.
CHAS. WESTON, MNGR.

Str. F. R. Buell	C. W. Woodgrift	Ed. Cottrell
Bge. A. Stewart	Frank Laforge	
Bge. Eleanor	Fred Chamberlin	
Str. A. Weston	D. McKenzie	A. F. Carter

LAKE SAND & GRAVEL CO., TOLEDO, O. R. E. DOVILLE, SECRETARY.

Str. R. E. Doville	Frank D. Lamb	Wm. England
Str. Walter D.	Jas. B. Warner	Joseph Sayen
Str. Laura D.	John Cunningham	James Shepler
Str. Commerce	Edward McNutt	Wm. McKinley
Str. Ella G.	Daird F. Doville	DeWitt C. Fields
Str. Syracuse	John N. Mulinix	Jacob Mulinix
Str. D. Dussault	John Moesing	Valentine Felder

LAKE ERIE TRANSPORTATION CO., TOLEDO, O. A. W. COLTON, MNGR.

Str. George J. Gould	W. M. Cottrell	George Butler
Str. S. C. Reynolds	T. C. Herrick	J. H. Miller

RED STAR LINE, BUFFALO, N. Y.

Str. Robert Mills	F. A. West	Robert D. Fisher
Str. Cuba	Robert Young	Emerson Fury
Str. Wyoming	J. A. Whiteside	Geo. M. Bohnert

GRAHAM & MORTON TRANSPORTATION CO., CHICAGO, ILL.

Str. C. of Benton Har'r	A. J. Simions	Louis Sebastian
Str. City of Chicago	Wm. J. Russell	Wm. F. Johnson
Str. Holland	John Stewart	Robert Oliver
Str. Puritan	Wm. A. Boswell	Byron Burman
Str. Wm. H. Gratwick	W. T. Bright	————
Str. P. M. No. 5	H. C. Page	Robert McLaren
Str. Joseph C. Suit	Ed. Williams	Luke Allen
Str. Bonita	No appointments	

C. MCG. KOCH, SANDUSKY, O.

Str. Annie Laura	D. O. Lockhart	J. Shampaign

SANDUSKY LUMBER & BOX CO., SANDUSKY, O.

Schr. Charles Wall	Daniel Nathan	

JOHN HOMEGARDNER, JR., SANDUSKY, O.

Str. Mary H.	August E. Meyer	George Moore

SPENCE BROS., CLEVELAND, O.

Str. H. E. Runnells	George McLeod	John Bloom
Str. Aztec	E. F. Mattison	Fred Welsh
Schr. Miztec	Harry Larsen	

MICHIGAN, INDIANA & ILLINOIS LINE, CHICAGO, ILL.
R. K. WARNER, MANAGING OWNER.

Str. John Oades	H. M. Boyce	Eugene Hidden
Str. Marion	H. J. Nelson	G. C. Olson
Str. Minnie E. Kelton	John A. Johnson	Fred Gartung
Str. Normandie	Andrew Olsen	Geo. Patterson

MACARTHUR BROS. CO., DETROIT, MICH.

Str. Tecumseh	Charles Beaupre	No appointments
Schr. Marengo	Thos. M. Gowan	

J. U. KARR, CLEVELAND, O.

Schr. Fannie Neil	W. A. Fetterly	

C. O. JENKINS, MNGR., OHIO STEAMSHIP CO., CLEVELAND, O.

Str. James P. Walsh	A. J. Greenley	W. H. Kennedy

C. O. JENKINS, MNGR., JENKINS STEAMSHIP CO., CLEVELAND, O.

Str. F. B. Squire	R. E. Byrns	Wallace Tomly
Str. Wm. Henry Mack	G. C. Stevenson	Wm. Constable

Generated on 2024-08-30 17:57 GMT / https://hdl.handle.net/2027/mdp.39015043584393
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

DETROIT, BELLE ISLE & WINDSOR FERRY CC., DETROIT, MICH.

Vessel.	Captain.	Engineer.
Str. Victoria	Peter Williams	Walter Merrill
Str. Excelsior	Archie Bains	S. G. Merrill
Str. Garland	Michael McCune	Fred Wolff
Str. Sappho	John Demsteadt	Wm. Wilkie
Str. Promise	Damise Jacques	Albert Garland
Str. Pleasure	Robert Ferguson	Hugh McAlpine
Str. Columbia	John Wilkinson	Henry Free
Str. Pappoose	J. W. Halcrow	Wm. Hyde

J. N HAHN, CLEVELAND, O.

Str. James H. Shrigley	T. L. Vandusen	Phil Canton
Bge. Shawnee	James Kobel	

J. & T. CONLON, THOROLD, ONT.

Str. Erie	P. Sullivan	P. Quinn
Schr. F. L. Danforth	T. McCarthy	

H. HOUGHTON, DETROIT, MICH.

Str. Mary	John Pearson	Edward Gifford
Str. H. Houghton	W. G. Deeg	A. Sampson

HENRY T. HEALD, GRAND RAPIDS, MICH.

Str. Grand	A. W. Langford	Morris Anderson
Str. Rapids	F. D. McCaffrey	————

POTTER, TEARE & CO., CLEVELAND, O. W. H. TEARE, MNGR.

Str. Mary A. McGregor	Henry Brock	Wm. Griffith

RUTLAND TRANSIT CO., OGDENSBURG, N. Y.

Str. H. R. James	W. H. Williams	L. O. Willix
Str J. R. Langdon	Harvey Brown	Charles Cotter
Str. F. H. Prince	E. B. Shay	Robert Vallance
Str. Gov. Smith	W. S. Shay	A. J. Kinch
Str. A. McVittie	T. M. Hough	F. E. Doyle
Str. W. A. Haskell	W. H. Plumb	Hugh Goodhart
Str. Wm. J. Averill	John Smith	Not appointed

LAKE SHORE STONE CO., MILWAUKEE, WIS.

Str. Hennepin	Geo. J. Bennett	F. P. Snyder
Str. Topeka	Chas. D. Ross	Geo. C. Risch

JOHN GREEN, BUFFALO, N. Y.

Str. Lewiston	Samuel Thurston	James Green

MUSKEGON STEAM BARGE CO., MUSKEGON, MICH.

Str. S. M. Stephenson	James Sanford	A. A. Green
Str. Math. Wilson	Peter Young	D. McMillan
Str. John Otis	Charles McClure	Not appointed

SHENANGO STEAMSHIP CO., CLEVELAND, O., W. B. DAVOCK, MGR.

Str. Wm. P. Snyder	Henry Peterson	Chas. E. Collins

JOHN DORRINGTON, DETROIT, MICH.

Schr. Maria Martin	John Dorrington

R. O. NESSEN & CO., MANISTEE, MICH.

Str. F. W. Fletcher	J. B. Tisdale	George Hopkins
Str. S. O. Neff	W. F. Franklin	Frank Greilick
Str. N. J. Nessen	Christ Edwardson	Joseph Seymour
Str. Albert Soper	George Thorson	Wm. Martin
Str. Manistee	H. Bennett	Wm. Merrill

NIPIGON TRANSIT CO., GROSSE POINTE, MICH.

Str. J. C. Ford	N. L. Morrison	Herbert Marion

EDWARD HINES LUMBER CO., CHICAGO, ILL.

Str. L. Ed. Hines	D. R. Parsons	James Byers
Str. W. H. Sawyer	M. Canartney	Frank Nold
Str. L. L. Barth	David Carrier	Reuben Ellis
Str. T. R. Wiehe	Wilson McGregor	Chas. McElroy
Str. Cormorant	K. McKenzie	Theo. Brinker
Str. Oscoda	James Heffernan	Chas. McElroy
Str. Louis Pahlow	W. J. McKay	Peter Jameson
Str. I. Watson Stephenson	L. F. Strahan	Joseph Nold
Bge. Ashland	Eli Jacques	
Bge. Wayne	Alfred Germain	
Bge. L. A. Law	Joseph Rose	
Bge. Marvin	Fred Anderson	
Bge. A. B. Norris	Horace Acree	
Bge. A. C. Tuxbury	Peter Ward	
Bge. C. E. Redfern	John Hudson	

Vessel.	Captain.	Engineer.
Bge. Helvetia	George Bailey	
Bge. S. H. Foster	W. P. Johnson	
Bge. Ida Corning	Peter Edgar	
Bge. D. L. Filer	W. H. Ellery	
Bge. Delta	John Bates	
Bge. C'y of Chicago	Zarr Madson	

F. B. DAUBLE, TONAWANDA, N. Y.

Bge. Olga	E. H. Prill	

F. B. CHESBROUGH, EMERSON, MICH.

Str. Kennebec	George Seifert	D. L. Kemp
Str. Kanawah	J. Johnson	W. S. Alexander
Str. Peshtigo	W. M. Brooks	Not appointed
Str. Kensington	Frank Lewis	T. O'Connor

THE NORTHERN NAVIGATION CO., SARNIA, ONT.

Str. Huronic	R. D. Foote	Samuel Brisbin
Str. Saronic	A. L. Campbell	Hugh Myler
Str. Monarch	A. E. Robertson	Samuel Beatty

LAKE ERIE TRANSPORTATION CO., CLEVELAND, O.

Str. Wm. S. Mack	T. A. McDougall	T. Blain
Str. P. P. Pratt	H. W. Judson	A. C. Ferguson
Schr. Athens	George Mackie	

L. S. SULLIVAN, TOLEDO.

Str. David W. Rust	Wm. J. Seaver
Schr. C. C. Barnes	G. E. Nelson
Schr. G. G. Houghton	A. Hagarty
Schr. J. Schuette	John O. Johnson

THE TOLEDO STEAMSHIP CO., TOLEDO, O., L. S. SULLIVAN, GEN. MNGR.

Str. E. Zimmerman	F. B. Cody	James Stewart

FREIGHT SITUATION.

Navigation on the great lakes is now under full way, the early boats meeting with vicissitudes and struggles inseparable from the first trip. The first carriers to Lake Superior encountered ice in St. Marys river but were not seriously disturbed by it. The Pittsburg Steamship Co. sent cargoes forward from the head of the lakes on Saturday last, and the steamer Douglass Houghton, a highly powered vessel, was the first to deliver a cargo of ore at Lake Erie ports this season. She delivered it at Conneaut on Wednesday morning, while the Maricopa of the same fleet delivered a cargo at Ashtabula Wednesday afternoon. The starting of the fleet took the shippers somewhat unawares, which, added to the difficulty of handling ore, some of it being still frozen, will keep the shippers busy supplying contract vessels, and it will be a week or more before there is any demand for wild tonnage in the ore trade. While every effort will be made to rush as much ore forward as possible before May 1, physical conditions will probably prevent a much greater quantity being handled than was handled last April, when 1,195,173 tons were shipped. Owing to the uncertainty which obtains regarding the aptitude of the Longshoremen, ore is being rapidly moved to the furnaces from Lake Erie docks. All the ore that is received before May 1 will be unloaded directly into cars and will go forward to the furnaces without delay. Notwithstanding the fact that there was a heavy surplus of ore on dock Dec. 1 last, it is expected that there will be less ore on dock May 1 of the present year than ever before. The amount of ore on dock Dec. 1 last year was 6,438,967 tons. The amount on dock on May 1, 1905 was 2,271,631 tons.

Practically every vessel that made a trip to the upper lakes this week carried coal, so there is certain to be a jam at some of the upper lake coal docks, and it will be some days yet before the ore fleet will be in full swing. The coal rates are 30 cents to the head of the lakes and 40 cents to Milwaukee.

Generated on 2024-08-30 17:58 GMT / https://hdl.handle.net/2027/mdp.39015043584393
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

COMMERCE OF DETROIT RIVER.

In competing the statistics of the commerce of Detroit river for the season of 1905 Col. Charles E. L. B. Davis, government engineer at Detroit, says:

"The following statistics of the commerce passing through the Detroit river during the season of 1905 were compiled in this office by the methods explained in detail by Mr. E. S. Wheeler, chief assistant engineer, and it is not claiming too much to assert that these statistics are more accurate than those obtained for any other river in the United States."

The report of Mr. E. S. Wheeler, chief assistant engineer, is as follows:

The commerce of the Detroit river for 1905 has been determined in the manner as for the preceding years. The data used and the method of compiling it are as follows: The Detroit marine post office keeps a list of all boats passing Detroit. For this purpose the post office is provided with a steam launch and several row boats, and is required by law to hail every passing vessel and take and deliver any mail she may have. This list was obtained from the Detroit post office. A list of the vessels that stopped in Detroit river was obtained from the American and Canadian customs offices. The first list gives all the vessels passing Detroit river without stopping, and the second gives all the vessels that stopped at any point in Detroit river, the ferry boats crossing the river between Detroit and Windsor and between Bois Blanc and Amherstburg excepted. After the lists were prepared the net registered tonnage was obtained from the American and Canadian "blue books" and summed; this gave the total number of vessels, and net registered tonnage using Detroit river. The results for the four years are as follows:

	No. of vessels.	Net registered tonnage.
1902	.....	39,328,689
1903	33,113	37,453,796
1904	29,472	33,049,984
1905	35,599	45,912,622

The preceding results are compiled entirely from official lists which are unquestionably accurate and complete. The number of vessels and their net registered tonnage are more accurately known for Detroit river than for any other river of the great lakes.

The records of the canals at Sault Ste. Marie have very great accuracy but give only the business which actually passes through the locks. It is quite possible that the business of the St. Marys river is more than a million tons greater than the business of the locks.

The actual freight tonnage of the Detroit river cannot be determined with the accuracy of the registered tonnage. A close approximation to the actual freight tonnage has been obtained by comparison with the tonnage at St. Marys Falls canal at which place the records of both the net registered tonnage and the actual freight are kept. It is found that the actual freight at the canal exceeds the net registered tonnage each season by the following ratios.

1902	0.125	per cent.
1903	0.250	" "
1904	0.295	" "
1905	0.209	" "

If the net registered tonnage of the Detroit river be multiplied by these ratios the following values are obtained:

Year.	Actual freight tons.
1902	44,245,000
1903	46,817,000
1904	42,800,000
1905	55,508,000

These results are based on the assumption that the ratio between registered and freight tonnage is the same for Detroit river that it is for St. Marys Falls canal. This assumption must be very nearly correct for more than two-thirds of the tonnage of the Detroit river actually passes through St. Marys Falls canal, therefore for this portion the ratio must be correct and the remaining third is so nearly similar in character that its ratio cannot be much different.

The bureau of statistics has determined from entirely different data the "Domestic Commerce" of the Detroit river for the season of 1905 and finds it to be 53,639,000 tons. Mr. Austin, chief of bureau, says "This does not include the purely Canadian trade." If the Canadian business through the Detroit river be added to the domestic commerce as given by the bureau of statistics the sum would be 55,382,000 tons, which is 126,000 tons less than the preceding estimate. This is a reasonably close agreement and indicates that both methods are substantially accurate.

The unit value of freight through the Detroit river must be substantially the same as that through the St. Marys Falls canal. Applying these unit values, the total value of the freight passing Detroit river is as follows:

Year.	Value per ton.	Total value.
1902	$ 9.96	$440,680,000
1903	10.08	471,915,000
1904	10.60	453,680,000
1905	9.42	522,885,000

It must be admitted that this is a very fair way of arriving at a close approximation of the commerce of the Detroit river, but the MARINE REVIEW has steadily maintained that it is a pity congress does not require the collection of actual statistics of lake commerce. It would be a revelation to the whole world if these statistics were reliably kept by the government. It could very readily be done by requiring the vessels to report their cargoes and by appropriating merely for the clerical work of compiling the statistics.

SAXONA AND ZIMMERMAN COLLIDED.

A serious accident occurred at Sault Ste. Marie on Monday when the steel steamers Saxona and Eugene Zimmerman collided at the foot of the dyke. It appears that the Saxona was just making a turn at that point when she collided with the Zimmerman, striking her 20 ft. back of the bow on the port side and crushing the bow and steel sides as far as the pilot-house and twisting the stem badly. The Zimmerman sank at once in 20 ft. of water on the Canadian side of the river. The Saxona continued down but filled and sank on the west side of the river at Little Mud Lake. The Saxona was bound down from Duluth with a cargo of flaxseed and the Zimmerman was taking a cargo of coal to the head of the lakes. The Zimmerman was on her first trip, having left the yard of her builders, the Toledo Ship Building Co., but a short time ago. She is owned by L. S. Sullivan and others of Toledo. The Saxona is owned by G. A. Tomlinson of Duluth.

The armored cruiser Washington, which was built by the New York Ship Building Co., Camden, N. J., underwent a trial trip last week off the Maine coast in which a speed of 22.27 knots was attained. This is more than a quarter of a knot in excess of the government requirement.

Mr. Frank B. Byrne, of Detroit, has closed contract with the Merrill-Stevens Co., Jacksonville, Fla., for the construction of a wooden steamer for Cuban trade.

Generated on 2024-08-30 17:58 GMT / https://hdl.handle.net/2027/mdp.39015043584393
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

LIVERPOOL SHIPPING LETTER.

Liverpool, April 10.—The merchant shipping bill of the new liberal administration was introduced in the British house of commons on March 20, and is intended to carry out the reports of three commissions which have been appointed for the purpose of dealing with special branches of merchant shipping law. The bill also makes various changes in the law which have been found in practice to be required in the interests of ship owners, seamen and good administration. The first part of the bill has reference to the application of the British safety regulations to foreign ships. These safety regulations deal with overloading, with unseaworthiness, the defective condition of hull machinery, and equipment and undermanning; with storage of grain, and with appliances, lifeboats, buoys and lifebelts. It has been known that for a long period foreign ships have been arriving at British ports in many cases overloaded to the extent of 10 inches, 12 inches and even 19 inches, and were in a very dangerous condition. Foreign ships have also been known to arrive and sail from British ports in an unseaworthy condition, and the various other regulations that British ships have had to recognize have been ignored by foreign ship owners in competing with British ships in British ports. It is now proposed by this bill to compel them to conform to all the before mentioned regulations which will give equal treatment to British and foreign ships alike. In regard to the stowage of grain, foreign ships carrying grain to British ports will also be subjected to the same regulations with regard to the stowage of grain as British ships. The bill therefore does not impose upon the foreign ship any obligation which British ships have not been subjected to for years. Foreign ships will also be made liable to the British passenger regulations. Another clause of the bill deals with alien seamen. There is to be no barring of the foreigner or the Lascar from the forecastle of British ships, but there is to be a language test for foreign seamen, as evidence that they can understand the orders that may be given. There is also to be a minimum scale of food for seamen and certified cooks to prepare their food. The new food scale for seamen is to be operative after January 1, 1907, but certified cooks on vessels of 1,000 tons and upwards will not be compulsorily required till after Dec. 31, 1908. As regards what may be called the safety regulations of the bill, they are to come into force, in the main, on Oct. 1, 1908, or any time within twelve months of that date. The opinion in all the chief British shipping centers is favorable to the bill, and there is no doubt it will pass into law this session with possibly a few minor amendments made. The North Atlantic passenger lines are not in any material sense affected by the clause as to the victualing of the seamen, since they are generally speaking, all accustomed to provide a dietary scale which far surpasses the requirements of the board of trade. The same lines also are not to any appreciable extent touched by the provision of the bill imposing a language test, inasmuch as they do not carry foreigners in anything like a large proportion, and even those who are signed on are invariably able to speak English with the same facility as their native tongue. Among the "tramp" steamship owners there is no serious apprehension felt that the new conditions embodied in the bill will at all represent a hardship.

The Mersey Docks & Harbor Board have just received parliamentary authority to construct additional docks and other works at a cost of, roughly speaking, $22,000,000. In consequence of the ever increasing size of vessels the dock board has had to recently arrange and remodel a great part of the old dock system which has cost already over $30,000,000. Notwithstanding these improvements, the Mersey dock board has become convinced that it is absolutely necessary to have further dock accommodation. The new docks that are to be provided are designed to accommodate the largest vessels afloat or building. There will be two new dock entrances 130 feet wide and 40 feet deep at high water neaptide, which will lead in to vestibules or half-tide docks and thence into systems of docks which will accommodate the 1,000-ft. vessels when they come to be built. These are not thought to be a long way off in view of the great advances that have been made in recent years in naval architecture. As to the necessity for the additional dock accommodation it has been pointed out that the trade of Liverpool is advancing very rapidly, and the rate of increase has been greater during the last three years than at any previous time. The docks that are to be immediately provided will accommodate one and a half million tons, and other docks will be proceeded with as the increasing trade of the port warrants.

An important combination in West Indian shipping is just announced. The lines of West India cargo steamers hitherto separately worked by Messrs. Scrutton, Sons & Co., London, Messrs. Prentice, Service, & Henderson, of Glasgow, and the Royal Mail Steam Packet company from London, Hull and Glasgow, will in future be run as a point service. In shipping circles here, it is believed that the companies mentioned with the view of stifling competition will work the traffic on the lines of a conference which, as is well known, are identified with many branches of the world's ocean-carrying trade. The Royal Mail Steam Packet company also announce important alterations in the itineraries of their transatlantic mail line steamers, and also in the itineraries of the inter-colonial steamers connecting the various colonies with the main line. The main line steamers of the company have for the last six months extended their voyages to New York. The chairman of the company, Mr. Owen Philipps, M. P., now states that it is intended to continue the New York route, and that the company is willing, for a very moderate payment from the imperial or colonial governments, to continue to connect up regularly all the West Indian islands and British Guiana with the Royal Mail Steam Packet transatlantic steamers at Trinidad or Barbadoes.

It is reported here that the contract arranged by the Canadian government with the Allan line for the Canadian transatlantic mail service provides that the turbine steamers Victorian and Virginian will each receive $5,000 a trip, and the Tunisian and the Bavarian each $3,750 to make ten trips per year, the remaining vessels of the fleet to be paid at the rate of $2,500 a trip and to make weekly runs.

Statements which have been made to the effect that the Adriatic, now being built by Messrs. Harland & Wolff, of Belfast, for the White Star line, is a duplicate of the Baltic, are misleading. The vessel is, says a writer in the *Pall Mall Gazette,* London, not quite so long as the Cunarders Muritania or Lusitania, but she is as much as 1,200 tons gross bigger than the Baltic. The displacement will be over 40,000 tons, or twice the displacement, that is to say of the battleship Dreadnought, at her loaded draught. Her double bottom has a depth of 25 ft. 1 in.—under the propelling machinery it is 5 ft. 10 in.—and her hull is divided into watertight compartments by eleven bulkheads. There are seven cargo holds, including reserve bunkers, two 'tween-deck holds insulated, and two holds fitted as deep tanks. The decks are nine in number. In her hull are close on 20,000 steel plates—some of the steel plates are 30 ft. long by 5 ft. wide, and weigh from three to four tons—and nearly 2,500,000 rivets have been used to bind them together. The work of building the vessel is proceeding rapidly, and it is expected that she will be ready for launching in the late summer. She is already plated up to her lower deck, and in a few weeks the shell will be complete. As she sits on the blocks she looks a magnificent ship.

"Motor Herring Boats" formed the subject of a paper read by Mr. Bernard B. Redwood at the Society of Arts on March

Generated on 2024-08-30 18:02 GMT / https://hdl.handle.net/2027/mdp.39015043584393
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

21. Mr. Redwood stated that the experiment conducted by the Scotch fisheries board with a view of testing the suitability of oil engines for the propulsion of herring boats had been successful, although it was felt that the five-knot speed realized was low. This, however, was a matter of money, and if higher speeds were necessary, the expenditure of more than £350 on the mechanical equipment would easily bring about the desired improvement. This price includes the cost of the capstan, and gives the power required by a full-bodied boat. Including the hull and fishing tackle the total cost is £700. This is for a boat 72 feet long over all, 21 feet beam, and 8 feet deep. The motor selected by Commander Mansfield Cumming, R. N., who was appointed by the fisheries board to investigate the question, is of 20 brake horsepower, having two cylinders. It is of Danish make, and was pronounced somewhat crude, but suited for its work. There was only one breakdown during the season, and that was due to carelessness. Under sail, with a hard breeze astern, the boat has sailed twenty-two nautical miles in less than two hours, but the trouble is that winds are not always favorable. An oil motor then enables the boat to catch the market, making all the difference in financial results. The application of four cylinders has reduced vibration and given a more equally distributed power. Some results were given of the torpedo boat fitted with petrol engines by Messrs. Yarrow. She has five engines, each with four cylinders of 6½-in. diameter and 6-in. stroke, the total brake horsepower being 80 at 1,080 revolutions per minute. These drive three propellers, two engines working the side shaft, leaving one for that in the center, and they give a speed of 26 knots. Steam machinery of 300-horsepower for a vessel of the same capacity running only 20 knots weighs five tons five cwt., while the 26-knot petrol boat only required three tons of machinery.

THE WORLD'S TRADE.—BRITAIN STILL LEADING.

A board of trade return, just issued, affords an opportunity of comparing the commercial progress made from 1903 to 1905 by the United Kingdom with that of several other countries, including British India and Canada. In all cases except those of Spain, the United States, and British India, the imports are intended to represent goods for home consumption only, that is, including re-exports. In every instance the exports are meant to represent articles of domestic produce. The Belgian and Spanish figures are for principal articles only:

YEAR'S IMPORTS.

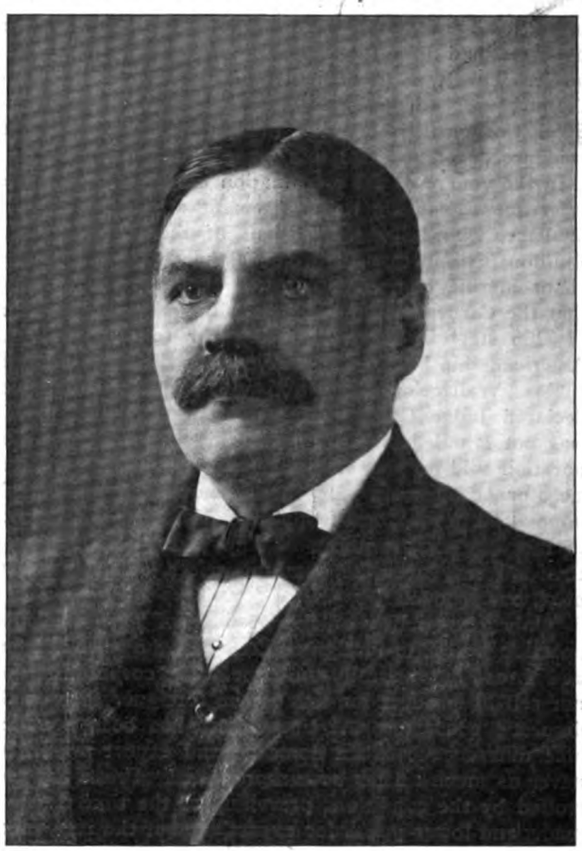
	1903. £	1904. £	1905. £
United Kingdom	473,027,000	480,734,000	487,481,000
British India	54,646,000	63,662,000	66,544,000
Canada	49,979,000	50,381,000	53,727,000
United States	207,395,000	215,814,000	245,653,000
Germany	300,134,000	318,206,000	336,500,000
Belgium	101,689,000	106,888,000	115,410,000
France	192,048,000	180,093,000	186,955,000
Switzerland	46,349,000	48,326,000	52,759,000
Spain	33,971,000	33,367,000	39,150,000
Italy	74,478,000	76,549,000	83,135,000
Austria-Hungary	78,213,000	85,329,000	89,912,000
Egypt	17,189,000	21,095,000	22,126,000
Japan	32,322,000	37,853,000	49,783,000

YEAR'S EXPORTS.

	£	£	£
United Kingdom	290,800,000	300,711,000	330,023,000
British India	95,392,000	104,949,000	102,650,000
Canada	43,595,000	38,780,000	43,332,000
United States	303,677,000	297,028,000	333,213,000
Germany	250,732,000	261,132,000	279,272,000
Belgium	79,875,000	82,960,000	87,455,000
France	170,090,000	178,038,000	190,469,000
Switzerland	35,189,000	35,253,000	38,315,000
Spain	33,437,000	33,683,000	35,107,000
Italy	60,698,000	63,889,000	68,295,000
Austria-Hungary	88,741,000	87,028,000	90,337,000
Egypt	20,049,000	21,353,000	20,890,000
Japan	29,193,000	32,231,000	32,492,000

PERSONAL.

One of the forceful men of the Pacific northwest is John Rosene, president of the Northwestern Steamship Co., of Seattle, Wash. When the tide of travel set in towards Nome he went along and with incredible energy set about to develop the latent resources of the region. He began a general merchandising business under the name of the Northwestern Commercial Co. The business grew rapidly and warehouses



MR. JOHN ROSENE.

were established at Nome and Teller. In 1901 Mr. Rosene visited Siberia and after a trip to St. Petersburg, during which he secured concessions from the Russian government, organized the Northeastern Siberia Co. Trading stations were established along the coast and the Northwestern Steamship Co. was then organized. This company has now a considerable fleet of vessels and with its allied interests enjoys a good trade.

The Union Iron Works, San Francisco, Cal., have been awarded contract to build a new steamship for the American-Hawaiian Steamship Co. to be called the Isthmian. The new vessel will be 385 ft. long and it is said will be an improvement on the steamships Nebraska and Nevada. The vessel will be used in the trade between San Francisco, Honolulu and Tehauntepec.

E. H. Harriman and his associates in the Pacific Mail Steamship Co. are figuring on competition by rail to the city of Guatemala which their Panama line is soon to experience, in addition to competition from the Tehauntepec railroad, in connection with a steamship service to both San Francisco and New York.

The Mutual Transit Co. opened its season of navigation with the steamer Northern King, which sailed from Buffalo on Monday last.

Generated on 2024-08-30 17:55 GMT / https://hdl.handle.net/2027/mdp.39015043584393
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

THE SHIPPING BILL.

Discussion of the pending ship subsidy bill before the house committee on merchant marine and fisheries at Washington, to which practically all of last week was devoted, brought out a mass of evidence in support of the measure. The hearing took an unexpected turn early in the week and developed an interested phase when Chairman Grosvenor, after a conference with the president, announced his determination to discover whatever basis of truth there might be in the report that American steel products had been sold abroad more cheaply than at home. This was the chief contention of opponents of the measure. Chairman E. H. Gary, of the United States Steel Corporation, testified in this connection, but no evidence developed that this report was well founded.

In the course of the examination of Judge Gary, direct reference was made to a statement attributed to J. C. Wallace, who as vice president of the American Ship Building Co., in testifying before the congressional merchant marine commission, stated that he was informed that the Carnegie Steel Co. was selling thousands of tons of ship steel in Scotland at $24 per ton and charging American ship builders $32 per ton for the same material.

"Mr. Wallace's information was entirely unreliable," declared Judge Gary, "The statement attributed to him was not founded on fact. The United States Steel Corporation sold no ship steel whatever abroad in 1905, only 3,000 or 4,000 tons in 1904, (about enough for one vessel), none at all in 1903, and I think none in 1902. As a matter of fact, the export prices of ship plates at the present time are very near the domestic prices, and this is true of all our products.

"Only one-twelfth of the product of the Steel Corporation is sent to foreign markets and the price at home and abroad is practically the same. The corporation does not sell its product for less to the foreigner than to the domestic consumer. At times there has been a noticeable difference between domestic and export prices, but never as much as has been represented. Prices are controlled by the conditions prevailing at the time a sale is made, and lower prices for export are not the rule, merely the exception."

In reply to inquiries Judge Gary said that the Steel Corporation had some difficulty in getting its products shipped direct to such countries as Argentine and South America, and that sometimes shipping facilities were entirely inadequate. In this connection, he said American manufacturers labor under a great disadvantage as compared with other competitors.

TARIFF NO HANDICAP.

When asked if tariff on steel was a handicap on American ship builders, Judge Gary emphatically replied that it was not, and pointed out that all materials for ships built or repaired in this country for the foreign trade were admitted free of duty. His company, he said, sold steel for ships built for the coastwise trade for the same price as for the foreign trade. He reiterated the statement that prices of such steel in this country are substantially on a parity with the prices of steel manufactured in Europe and steel sold to European ship builders. At times, he said, Germany and Belgium are very aggressive in competing with the United States and use this country as a "dumping ground" for their surplus products.

"Germany takes care of Germany," he declared, "you may be sure of that, and large bounties are given. Therefore, notwithstanding the tariff on steel, we are subject to fierce competition." He stated that the higher forms of manufactured steel made in this country are superior to that made abroad and attributed this condition largely to the superiority of the skilled labor of the United States. Germany he believed to be the country taking the best care of its industries, and he declared there is no limit to which it would not go in this.

AMERICAN LABOR COSTLY.

Edwin S. Cramp, vice president and general manager of the ship building firm of Wm. Cramp & Sons, Philadelphia, was an instructive witness April 10. He declared that the greater part of the material entering into a ship for the foreign trade can be purchased almost as cheaply here as abroad, explaining that materials for such ships can be imported free from duty. The labor cost, however, he has found almost double on account of the higher wages paid in the United States. As labor represents practically two-thirds of the cost of vessels against one-third for material, the cost of construction is much greater here than abroad. On account of the high cost of armor and ordnance, however, the comparative cost of labor in constructing a battleship is about 50 per cent.

"Since 1891," said Mr. Cramp, "Congress has not only done nothing for the ship builder, but has really tried to exterminate the merchant marine." During the Spanish war the war department purchased 61,000 tons of ships at a cost of $5,431,000 and the navy 72,000 tons at a cost of $5,111,000. Most of these ships were rotten, he declared, the departments being compelled to take whatever they could get. The Merrimac was sunk in Santiago habor because it was the least valuable ship the navy had.

If the shipping measure were enacted, Mr. Cramp believed it would not only greatly increase the amount of foreign trade in American bottoms, but would furnish employment to fully 15,000 additional men in the ship building industry. If it is not enacted, the volume of goods carried in American ships, which is now nine per cent of our foreign trade, will dwindle to three per cent, for ships with American registry would be sold to foreign owners. He predicted that the benefits of the pending bill would not come to the trade between New York and Liverpool, where competition is now very keen, but would come from the trade between American ports and South Africa and Central America.

Mr. Cramp pointed out the fact that even now the plan which Germany is following, allowing rebates upon its railroads on articles intended for the export trade, and the rebates which are allowed by Germany ships upon Germany goods, tend in many instances to wipe out entirely the difference in tariff. This explains why German pottery can be sold in Ohio cheaper than American pottery. The trade of Germany with the South American states and the African colonies has been built up very largely by its merchant marine.

GREAT YARDS IDLE.

Mr. Cramp was followed by Chas. R. Hanscon, president of the Eastern Ship Building Co., New London, Conn. He said that this yard had turned out two of the largest ships ever built in this country and the largest cargo carriers in the world, costing between $5,000,000 and $6,000,000 each, but for more than a year the yard has been idle and there is nothing in sight. The cost of labor in this country, he stated, was from 40 per cent to 75 per cent higher than in Europe, and on this account there would never be a time when we could build ships as cheaply as the foreign countries, but the proposed subsidy would tend to equalize conditions.

Harvey D. Goulder, president of the Merchant Marine League, of Cleveland, read resolutions favoring the measure from the New Orleans Board of Trade and a number of other southern commercial bodies.

Certain amendments offered by the Marine Association

Generated on 2024-08-30 17:56 GMT / https://hdl.handle.net/2027/mdp.39015043584393
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

of New York were criticized by Arthur S. Sewall, Bath, Me., a prominent builder and operator of steel sailing vessels, on the ground that inadvertently they would favor foreign mail carrying ships. His firm, he stated, began building and operating ships in 1823, but stopped building several weeks ago. Not a wheel has turned and not a mechanic has been employed in three years. No steps will be taken to replace two large ships lost last year, unless the present proposed bill becomes a law.

WHY COST INCREASES.

Edward C. Plummer, of Bath, Me., secretary of the Atlantic Carriers' Association, was an important witness. He dealt largely with the question of ship construction and stated that the principal reason why American ship builders could not compete with foreign ship builders was that they did not have enough work to keep their men properly employed and their yards engaged. It costs more to make patterns for a ship than to make the castings, he said, and in England the ship builder would construct a hundred ships from the same pattern, while in the United States, owing to the scarcity of orders, it was necessary to draw new patterns for almost every vessel. Because of this the men employed in the ship yards were necessarily more or less inexperienced and could not work with the rapidity or skill of men who were doing the same work day after day in the foreign yards.

Frederick W. Wood, president of the Maryland Steel Co., Sparrows Point, spoke briefly in behalf of the measure from a practical standpoint. "If we can get enough work to keep our yards constantly employed," he said, "we can make a considerable reduction in the present cost of vessels notwithstanding the high cost of labor. I see the comparison is frequently made between the construction of ships and the building of locomotives and bridges. There is not so very much difference between these lines of work and it is admittedly true that we construct the finest bridges and locomotives in the world and compete with the remainder of the world for foreign markets.

"But," he added, impressively, "it should also be borne in mind that we do not construct one locomotive or build one bridge and then let the work lie idle for a year. On the contrary, the men are constantly engaged in this work and the locomotive works and bridge works are running at their fullest capacity. Any one can see with half an eye that this permits of economies which are impossible in a business which may at one time be employing thousands of workmen and three months later be absolutely idle, with the men scattered all over the country. If we could build as many ships in proportion as our locomotive works build locomotives, we could turn them out comparatively as cheaply."

EXAMPLE OF THE LAKE.

One of the last witnesses was Harvey D. Goulder, of Cleveland, O., president of the Merchant Marine League of the United States. This is an organization composed almost exclusively of merchants and manufacturers who are supporting the shipping bill because they believe it will open up new markets and extend American commerce. Mr. Goulder said in opening that he wished to appear in behalf of the "plain people." He was not interested in any corporations or anything else that would profit by the passage of the bill.

Mr. Goulder cited as an example the object lesson of shipping on the great lakes. Protection to American shipping has resulted in the investment of a great many millions of dollars in ship yards on the lakes and in ships and terminals. Sixty thousand Americans are employed in this industry and their wages are spent in the United States. Incidentally there has been a great saving in freight rate, so much so that in 1903 the difference between the water freight rate and what would have been the railroad freight rate was more than all the money that the government had ever expended in improvements on the great lakes.

Representative Hinshaw, of Nebraska, wanted to know how the west would be benefited and Mr. Goulder said that although the middle west saw it had been benefited by the construction of the land grant railroads, the people there generally failed to realize the benefit to the country which would come from having its own merchant marine. However, the intelligent people of the west understood the question and favor the bill. "The trouble is," he said, "that some of the members of congress appear to be afraid of the cars."

"You do not mean any member of this committee?" inquired Representative Sherley, of Kentucky.

"Well, I am not so certain about that," said Mr. Goulder.

Continuing, Mr. Goulder said that lake transportation cost only eight-tenths of a mill per ton mile and that railroad transportation, even the cheapest, was about five times as much.

A CHEAPENING POLICY.

"Americans are fond of coining high-sounding phrases," said Mr. Sherley. "For instance, I would like to have you explain to me what is meant by 'drummer ships' and 'delivery wagon ships.' "

"Take Brazil, for instance," was the reply. "Most of the people there do not know there is such a country as the United States. The English, French and German ships go there, and Brazil is in touch with those countries. But, if they know anything about us at all, they cannot have a high opinion of a nation which ships its manufactures in the vessels owned and operated by its chief competitors. As a matter of fact they look upon us as we do upon China, as an uncivilized manufacturing nation to be exploited by Germany, France and England. Every American ship acts as a 'drummer' for American commerce as it carries American goods and stimulates interest in our products."

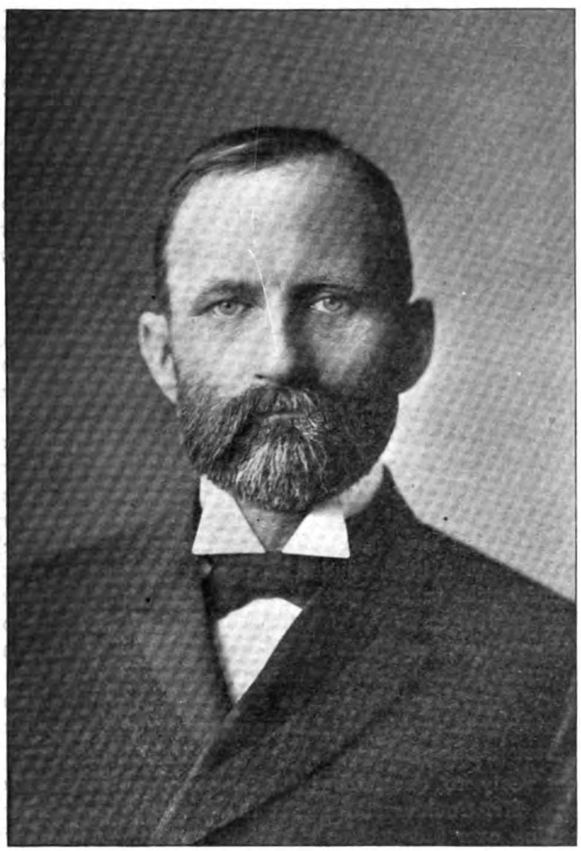
In reply to questions by Representative Birdsall, of Iowa, Mr. Goulder stated that the United States is now handing over $180,000,000 a year to foreign ship owners. "If we could keep this money in the United States would it not benefit all lines of trade?" he asked. "Is this congress going to stop at spending four million dollars a year if it puts $150,000,000 a year into circulation? In ten years one hundred and fifty million dollars will be invested here in the construction of ships alone."

At the concluding session of the committee, Francis T. Bowles, of the Fore River Ship Building Co., ex-chief constructor of the navy, recited many reasons why the United States should adopt some policy which would rehabilitate its merchant marine. At present, he said it was depending on English and German ships to carry its commerce. In case of war between these two nations this commerce would be left without means of transportation. In case of war between the United States and a foreign nation this same situation would result, and the United States would be at still greater disadvantage by not having merchant men to press into the service as auxiliaries. The navy today, he said, had not men enough to man its ships. Whenever a new ship was put in commission it was manned by placing out of commission some older ship. As a pure matter of business and as a practical insurance to our foreign trade, the government should aid its merchant marine.

Generated on 2024-08-30 17:56 GMT / https://hdl.handle.net/2027/mdp.39015043584393
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

Improvement of Our Waterways.

A forceful plea for the permanent improvement of the waterways of the United States through federal appropriations was made before the Mississippi Valley-Latin American convention last week by Congressman Joseph E. Ransdell of Louisiana. No address yet heard by the convention created a more profound impression or excited more comment. At its conclusion the speaker received an ovation. Congressman Ransdell said he believed he would live to see the day when stately vessels, loaded at Buffalo, Cleveland, Detroit, Milwaukee, Duluth and Chicago with the rich products of the mines, the factories and the fields of the north and west, would float through a canal and down the Father of Waters to Memphis, Vicksburg, New Orleans, Mobile and Galveston, returning thence laden with the commerce of the south and the whole earth, coming to our shores from Europe, across the Atlantic and through the Panama canal from far-off Asia, South America, our western coast and the islands of the seas. The address of the congressman follows:



HON. JOS. E. RANSDELL.

"Mr. Chairman and Gentlemen of the convention:—You have assigned as my subject 'The Mississippi River and its Tributaries,' truly a splendid subject, and one worthy of my best efforts. In the brief time of an ordinary address it is impossible to do more than simply touch upon the great Father of Waters and the numerous rivers which run into it, making in the aggregate about 15,000 miles of navigable water. The area drained by this river and its tributaries equals the combined area of Austria, France, Germany, Italy, Portugal, Spain, Norway and Great Britain. Its headwaters extend from New York on the east to western Montana on the west, from British America on the north to the Gulf of Mexico on the south, through 1,800 miles of longitude and 1,500 miles of latitude. Its drainage area is 1,250,000 square miles, nearly one-half of the total area of the United States. It touches thirty states, two territories and two provinces of British America. Only nine states to the east and seven to the west lie entirely beyond the confines of this great basin.

"The Mississippi river and its tributaries constitute the most magnificent system of internal waterways on earth. Along their shores live the dominant people of the globe. Napoleon Bonaparte, the greatest genius who ever lived, said over a hundred years ago that the nation which controlled the Mississippi river would be the greatest power on earth, and his words have been fully verified in the past ten years. The United States is today the leading power of the world. It never could have occupied this proud position but for its ownership of this mighty river. Never was there a wiser piece of statesmanship than when the immortal Jefferson made the Louisiana purchase. He was not an expansionist, and did not desire the territory of Louisiana, but he wished control of the Mississippi river. That was what induced him to make the purchase, and that purchase added a splendid empire to our domain.

"If time permitted, Mr. Chairman, I might tell you about all the great rivers of this basin, but I deem it wiser to discuss in a common sense way something which will be of practical benefit, which has a direct bearing upon the purpose of this convention, and offers, to my mind, the best solution of the question. I mean the proper development and improvement of all these rivers, and along with them must go the improvement of every waterway in the union.

WATER TRANSPORTATION.

"Lord Bacon once said: 'There be three things which make a nation great and prosperous: a fertile soil, busy workshops and easy transportation of men and goods from place to place.' We certainly have in this valley a most fertile soil and most busy workshops, and we can have easy transportation of men and goods from place to place if we will take advantage of our opportunities.

"Senator Morgan of Alabama, in his report on the improvement of the Tennessee river, says: 'The improvement of the navigation of the Mississippi river should receive the united, faithful and liberal support of the entire country, as the most important and distinguishing feature in the commercial highways of this continent, which is without a rival in the geography of the earth.' And again he says: 'Water transportation is the great controlling power that stands for justice to the people, and they are demanding that congress will give it rightful encouragement. There is one pronounced reason that can never be changed to support water transportation against all other methods. It is that the navigable waters belong to the people and cost nothing for construction, while all other methods belong to individuals or corporations and the cost of transportation must be calculated at a profit on the cost of construction and ownership.'

"The transportation question is today the most important one before the American people. Our strenuous president has been urging it upon congress in the most vigorous manner, and ever since the beginning of the present session that question has overshadowed all others. Like Banquo's ghost 'it will not down,' and the people are determined to have some settlement of it.

"I am in favor of a reasonable rate bill, just to both shipper and carrier, allowing a full review to both sides in the courts, but I am firmly convinced that if we could develop the waterways of this nation as they should be developed, and as I believe they will some day be developed, the rate question would settle itself, in at least three-fourths of the country, without resorting to the interstate commerce commission.

CHEAPER FREIGHTS.

"I have far more confidence in the great free highways of the Almighty, constructed by the hand of the Creator, free and open at all times and to all men—the poorest and the richest—than I have in artificial highways constructed by men. I have far more confidence in the immutable laws of supply and demand, in the forces of competition and legitimate strife between carriers on our unmonopolized waterways than I have in billionaire railroad trusts, regulated by a fallible and susceptible interstate commerce commission of nine or ten men. Wherever canals, rivers, lakes and other waterways are properly developed, so that navigation is first class, freights are cheap, and there is no demand for rate regulation. This demand comes entirely from communities which have no waterways.

"I am by no means certain that even the most drastic rate law will permit the commission to make satisfactory

Generated on 2024-08-30 17:58 GMT / https://hdl.handle.net/2027/mdp.39015043584393
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

rates. Surely it can never go farther in inter-state rates than a state commission can go within its own borders. I know from experience as a member of the rivers and harbors committee that the people of northern and eastern Texas are exceedingly anxious to have the Trinity river developed in order that they may get cheap rates for their cotton from Dallas to Galveston. Texas has a railroad commission which has gone to extreme lengths in its provisions against railroads, has gone, I am sure, just as far as its constitution will permit, and certainly as far as the constitution of the United States would permit the interstate commerce commission to go, and yet the people of the Dallas section, 300 miles from Galveston—entirely in the state of Texas—are forced to pay $3 per bale on shipments of cotton to that seaport. Along the Mississippi river and other navigable streams steamboats carry cotton 400 and 500 miles for $1 per bale. On the great lakes a ton of coal is carried 1,000 miles for thirty-five cents, and on the Ohio and Mississippi rivers, under present unsatisfactory conditions, a ton of coal is carried 2,000 miles for $1.35. The people of Texas are asking congress to improve the Trinity at a cost of $5,000,000 or $6,000,000, so that they can ship their cotton at $1 per bale. Now, let me ask, if the Texas commission can not save these people from this great overcharge on cotton—$2 per bale in excess of what it should be—what relief could be expected from a national rate law? The whole trouble would be promptly and satisfactorily settled by developing the Trinity and making it navigable twelve months out of every year, and that should be done by congress as soon as possible. I fear that the situation at Dallas will be found to exist in many places in the union, and that much disappointment will come to those who expect such great results from the rate legislation.

"Our rail transportation has been marvelously developed—in this respect we are far ahead of any other country. Germany is our closest competitor, but while a single train in Germany rarely carries over 350 tons, it is not unusual for a trainload of 1,800 tons to be seen on our western prairies. And the cost of rail freights is lower with us than abroad. In water development, however, we are behind the times.

DEVELOPMENT OF WATERWAYS.

"In France and Germany for many years there has been a very great development of waterways. All their rivers have been deepened and improved and connecting canals have been constructed in many places. It is said that freight can be conveyed by water from practically every part of France and Germany to every other part. Let me quote from a recent work on modern Germany, published in 1905 by O. Eltzbacher. On page 231, etc., he says:

"'Recognizing the importance of cheap transport and of an alternative transport system, which would bring with it wholesome competition, Germany has steadily extended and enlarged and improved her natural and artificial waterways, and keeps on extending and improving them year by year; and if a man would devote some years solely to the study of the German waterways and make the necessary but very extensive and exceedingly laborious calculations, he would probably be able to prove that Germany's industrial success is due chiefly to cheap transport, and especially to the wise development of her waterways.'

"Everywhere in Germany water transport is being developed with the utmost vigor and energy. On all the rivers and all the canals commercial and industrial activity is marvelously developing, and the development of water transport is becoming almost a sport, if not a passion, with the German business community.

"If it were not for the existence of the German waterways the German industries would certainly not be in the flourishing condition in which they are now. When ice closes the German rivers and canals, the export and import trades are at once very seriously affected, and if the German waterways should be blocked for a whole year, the whole of Germany would probably be ruined, for Germany can not live without her waterways. Certain valuable products and by-products of the German mines and iron works, and the more bulky product of the chemical industries of Germany can, according to many, only be sold in Germany and abroad, owing to the cheapness of transport by water, and in many cases the profit is cut so fine that an increase of the freight charges by about one-fiftieth of a penny per ton per mile would inevitably kill important industries which, it seems, are at present killing the industries of countries competing with Germany. Thus Germany's industrial success is no doubt due to a very large extent to the immense assistance which she receives from her waterways.

WORK FOR GOVERNMENT.

"In my opinion, we could well emulate the French and Germans in this wise policy, and I sincerely hope we will do so. To my mind there is no more defensible and reasonable object for national legislation than improving navigation, thereby cheapening freight and benefiting every producer and consumer in the land, for transportation charges add nothing to the value of any commodity, but are a tax alike upon the producer and consumer. The life blood of a nation is its commerce. For every foot of added depth to the harbors of New Orleans, New York and Boston the farmer in the cotton fields of the south and plains of the west gets an appreciable increase in the price of his cotton, wheat and corn, not only on what he ships abroad, but what he sells at home, for it is an axiom of political economy that the price of the surplus fixes the price of the whole.

"Before the great improvement of lake navigation—say in the 60s, wheat cost 29.61 cents per bushel from Chicago to New York by the lakes and the Erie canal and 46.10 cents by the all-rail route. Now that a magnificent waterway—twenty-one feet at its shallowest part—exists from Duluth and Chicago to Buffalo, the freight on a bushel of wheat from either of these cities to New York is 5.25 cents by lake and canal, and 10.60 cents by rail. This is a saving to the farmer of from 25 to 35 cents per bushel on the rates of thirty-five years ago, and over 5 cents per bushel on present rail rates. In other words, where it formerly cost 29.61 cents per bushel by water it now costs 5.25 cents—about one-sixth as much—and where rail rates were 46.10 cents they are now 10.60—a little less than one-fourth. The cereal crop of the states immediately adjacent to the lakes—Illinois, Indiana, Ohio, Wisconsin, Iowa, Minnesota and Michigan—as shown by the census of 1900, was 2,204,000,000 bushels, and a saving of even 5 cents per bushel thereon in freights to seaboard meant for the farmers of those seven states a gain of $11,000,000 per annum on the grain crop alone. But for the water transportation furnished by the lakes and the Erie canal that immense sum would have gone into the hands of the railroads, and a much greater sum annually from traffic of other kinds.

"I have referred to only seven states adjacent to the lakes, but it is a well known fact that the Erie canal, in conjunction with perfected channels in the Detroit, St. Clair and St. Mary's rivers, regulates and controls freights from the Mississippi river to the Atlantic, and from the lakes to the gulf. On the Mississippi river there is a striking advantage in favor of grain routed from St. Louis to New Orleans by river and thence by ocean to Liverpool. The yearly average on grain so shipped for the five years from 1899 to 1903, inclusive, was 10.99 cents per bushel, and for the same period the rate by rail to New York and thence via ocean to Liverpool was 16.33 cents—a saving by the Mississippi route of 5.34 cents per bushel—a saving to the farmers in the valley states of over $100,000,000 a year.

WATER TRANSPORTATION.

"There is no comparison between the cheapness of water and rail transportation. For further illustration, let us consider the proposed Lake Erie and Pittsburg canal, which is to be constructed by a private company under authority of congress from Lake Erie to the Ohio river at a cost of about $40,000,000. It will be 100 miles long and about twelve feet deep. An enormous traffic is now carried by several railroads over the proposed route of this canal, between Ashtabula and other points on Lake Erie and the Pittsburg district—probably 50,000,000 tons a year—and the charge is 6 to 7 mills per ton per mile. The water rate from Duluth to Ashtabula is three-tenths of one mill per ton per mile on coal, and eight-tenths of one mill on iron ore, so that while it costs 80 cents for every ton of ore conveyed by water from Duluth to Ashtabula, a distance of 1,000 miles, it costs to carry that same ton of ore by rail from Ashtabula to Pittsburg—135 miles—about 90 cents per ton. In other words, it costs ten cents per ton more to go 133 miles by rail than 1,000 miles by water. These are actual figures and show that it costs fully seven times as much to move iron ore by rail as by water in that locality. On coal the disproportion is much greater, for the water rate is only 35 cents per ton to Duluth, or less by 55 cents per ton to go a thousand miles on the water than 135 miles by rail. On this commodity—coal—the rail rate per mile is just twenty times as high as the water rate. Hence it would appear that if the canal is constructed there would be such a great reduction in freight rates on both coal and iron, these two items of such tremendous importance to every citizen of this union, that the benefit resulting from this canal would be incalculable.

"After a careful study of the subject I am convinced that water rates under favorable conditions are only a sixth as high as those by rail, and that every dollar prudently expended in improving and perfecting the navigation of our waters will save $6 per annum to the people in reduced rates. Moreover, there are many communities where the railroads cannot han-

Generated on 2024-08-30 17:58 GMT / https://hdl.handle.net/2027/mdp.39015043584393
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

dle the freight and where water is badly needed, not only as a regulator of rates, but an actual carrier of freights.

"Do the farmers and manufacturers of the interior derive any benefit from the deepening of harbors on the seaboard? Unquestionably, yes. Let us take Boston as a fair example, on whose harbor $5,000,000 have been spent. In 1880 the average vessel entering there drew twenty-two and one-half feet, carried 2,500 tons, and charged eight to ten cents per bushel on grain to Liverpool. Today the average vessel draws thirty feet, carries 7,500 tons, and charges two to three cents per bushel on grain. Of course, all other charges on incoming and outgoing freights have been reduced in proportion—a reduction of nearly 400 per cent in twenty years. This was the direct and immediate result of the deepened channel, which permitted the passage of vessels of large capacity—three times as large as those of 1880—capable of earning more net profit on two to three cents per bushel than their competitors of twenty-six years ago on eight and ten cents.

"Think of what that means to the American people, a saving of six cents on every bushel of wheat or corn, a saving of $39,279,260 on the average wheat crop, and $134,650,260 on the corn crop; a saving of $2 on every bale of cotton, or $22,000,000. On the cotton crop of 1905 a total saving on these three items, wheat, corn and cotton, of $194,929,810 in one year. And yet you ask if the farmer of Minnesota and Louisiana is interested in the five millions spent on Boston harbor? Would to heaven the other great expenses of the government were of like interest to the people of Minnesota and Louisiana. It has been well said that 'the hundreds of millions appropriated in other bills are like myriads of raindrops falling on the parched sands of the desert, only to pass at once from sight without leaving a trace behind, while the limited sums so grudgingly given for internal improvements remain to bless and enrich the country for all time.'

ADVANTAGES TO NEW ORLEANS.

"Coming closer home, what has made New Orleans pass the ports of Boston, Philadelphia and Baltimore and become the second export city in the union? The improvement at the mouth of the Mississippi river, which allowed ingress and egress of the largest ocean steamers and competitive freight rates with all other seaboard cities.

"It is the same with improvements on our rivers. The Monongahela has cost the government about $6,694,827.40, and its annual commerce is 10,000,000 tons. The rivers and harbors committee gave a hearing about three years ago to friends of this river and among the speakers was B. F. Jones, of Jones & Laughlin, Pittsburg, very large manufacturers. Mr. Jones testified that his firm employed from 7,500 to 8,500 men, used from 6,000 to 7,000 tons of coal per day, or 1,500,000 tons per annum, most of which was received by river, at a freight cost of 3.5 to 4 cents per ton, and that when traffic ceased on the Monongahela, owing to freezes or other causes, the railroads charged forty-four cents per ton—eleven to twelve times as much as the water rate. He also said it was utterly impossible to get his supply of coal by rail, owing to the lack of transportation facilities.

"Here, then, is a case which any doubting Thomas can investigate, where rail rates on a great commerce of 10,000,000 tons annually, are actually 1,100 to 1,200 per cent higher than water rates, and where, if all this commerce should be carried by rail, the excess charges over water rates would be the immense sum of $4,000,000 a year. Some of the locks on the Monongahela have been threatened with destruction. Let those locks cease to work and the coal supply of Pittsburg will be shut off; the iron mines in Minnesota—1,200 miles distant—will cease to hum with activity; the splendid fleet of 2,000 ore steamers on the lakes will rust in their docks; the sugar planters of Louisiana who burn Pittsburg coal will suffer irreparable loss; the docks of New Orleans will be lined with idle ships waiting for a fuel supply; in short, every part of our common country will feel the evil effects. This picture may seem overdrawn, but I defy any business man who is familiar with the enormous manufacturing interests of the Pittsburg district, the largest on earth, and its coal supply, which is used all over the middle west and the Mississippi valley, to show that a total stoppage of traffic on the Monongahela would be less disastrous than I depict. We must preserve the commerce of that river at any cost.

"Pittsburg and the country around it is the greatest manufacturing center on the continent, and it is so because of its situation on navigable water courses, and its proximity to raw materials—coal and iron—which can be brought to it by water at a minimum of cost. The valley of the Ohio river from Pittsburg to Cairo, nearly a thousand miles, is a perfect bechive of industry and activity. Taken as a whole it is the most populous and prosperous part of the United States. It has been the center of population in our country since 1850, and is now the center of commercial industries.

"In this valley are several of our greatest cities and thousands of smaller towns. Its agricultural and mineral wealth are close seconds to its wonderful manufactures. The whole world pays tribute to it, and on its products in ocean transit to the marts of earth the sun never sets. It was the necessity of an outlet to the sea for the people and products of this valley that caused the Louisiana purchase. Would it not be treason to neglect such a river as the Ohio? Yet it needs vast sums—possibly $60,000,000—to improve it properly, with 9 feet from Pittsburg to Cairo, and complete the development of its marvelous resources.

"Its main tributaries, the Tennessee and the Cumberland, are long rivers whose valleys teem with inexhaustible timber, mineral, agricultural and manufactured wealth, which are but in the infancy of their development—indeed, which have scarcely been touched—and the magic wand of $10,000,000 spent on each of them would open treasures to the nation and repay the government a thousand fold for the comparatively small expense of making them navigable the year around.

CANAL FROM CHICAGO.

"Let us now consider the proposed fourteen-foot canal from Chicago to St. Louis. The splendid business men of Chicago have already spent upward of $40,000,000 on their sanitary and ship canal connecting Lake Michigan and the Illinois river, and to complete this project, which is being rapidly pushed, will cost them $10,000,000 additional, making the total cost $50,000,000.

"Had they desired only the sewerage of their city, less than $18,000,000 would have sufficed, but they wished to lay the foundation of a great ship canal between Lake Michigan and the Gulf of Mexico, so deep and strong that the government would feel compelled to complete it. We know not what it will cost for a 14-foot channel from Chicago to New Orleans, but certainly not as much as the one hundred millions which the empire state of New York is now spending on the Erie canal to make it twelve feet from Lake Erie to the Hudson river. The engineer board appointed by congress to survey the project from Chicago to St. Louis estimates that the cost between those cities would be about thirty millions. I am convinced that the total cost from Chicago to New Orleans would not exceed eighty millions. Such a waterway would be a marvelous carrier of commerce and regulator of freight for the entire basin of the lakes and the entire valley of the Mississippi and tributaries, with their myriads of people, their splendid cities, and their countless wealth. No man can estimate the effect on the commercial relations of our vast interior of that waterway, joining in indissoluble union the cool waters of the great lakes and the warm currents of the sunny gulf.

"I am no prophet, yet methinks I shall live to see the day, when stately vessels, loaded at Buffalo, Cleveland, Detroit, Milwaukee, Duluth and Chicago, with the rich products of the mines, the factories, and the fields of the great north and west, will float through that canal and down the Father of Waters to Memphis, Vicksburg, New Orleans, Mobile and Galveston, returning thence laden with the commerce of the south and the whole earth coming to our shores from Europe, across the Atlantic and through the Panama canal from far-off Asia, South America, our western coast, and the islands of the seas. Who will hesitate or delay in the promotion of such a project? Not any American who has at heart the best interests and pride of his country.

"Let us now glance for a moment at some other rivers of the valley. We must not forget the upper Mississippi, at whose head stand the fine twin cities—Minneapolis and St. Paul—the center of the flour industry of the country. They are asking for six feet from St. Louis to St. Paul, at a cost of about $20,000,000 and surely the great commerce of that wealthy and populous section justifies the expenditure.

"Our friends on the Missouri have been quiet in recent years, and are not clamorous for any specific project, but that mighty stream is navigable for upwards of 2,500 miles, and I predict that the slumbering giant will awaken in the near future and make its wishes known in very strong language. It runs through a region of the greatest agricultural wealth and on its shores live several millions of the best blood of the nation. When it asks for eight feet from Omaha to St. Louis at a cost of forty to fifty million dollars, there will be powerful support behind that request.

"And then we find the Arkansas, the Yazoo, the Red, the Ouachita, and the Atchafalaya, all splendid streams susceptible of improvement at a reasonable cost, probably fifteen to twenty millions for a thorough development of the five rivers. These streams and the lower Mississippi are the very center of the cotton belt, and their people are universally engaged in the production of that staple which the whole world buys from us, and which makes such a large balance of trade in our favor on our ledger with the globe.

Generated on 2024-08-30 18:05 GMT / https://hdl.handle.net/2027/mdp.39015043584393
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

THE LEVEE SYSTEM.

"And last, but far from least, we come to the levee system of the lower river. One of the most interesting problems in America and, indeed, in the world is the levee system of the Mississippi river, between Cairo and the gulf. When Bienville laid out the city of New Orleans, about 200 years ago, he began to build levees, and from that time to now they have grown steadily. Upwards of $60,000,000 have been spent upon them; about $20,000,000 by the national government and $40,000,000 by the states and riparian owners. The area protected by these levees is about 20,000 square miles, which the great jurist and friend of levees, Judge Taylor of Indiana, describes as the agricultural cream of the continent—which is capable of supporting fully 15,000,000 people, and of raising 15,000,000 bales of cotton, considerably more than the entire cotton crop of the union at the present time. It will require $20,000,000 to finish them, and thoroughly protect these rich lands from the nation's floods.

"Taken in the aggregate the worthy projects of river improvement on the Mississippi river, and its tributaries, amount to nearly $300,000,000. Of course this estimate is speculative to some extent, as only a small part of these projects have been surveyed.

"Mr. Chairman and gentlemen of the committee: New Orleans lies at the very mouth of this, the greatest system of inland waterways on the globe, a system that reaches into the very heart of the country, the main trunk reaching in an unbroken line of 2,000 miles to the greatest food-producing center of the world; the left arm extending into and intersecting the golden grain fields of Missouri, Kansas and Nebraska; the right arm reaching into the very center of the greatest manufacturing section of this country, or of the universe.

"Does one barrel of the countless thousands of flour made at Minneapolis ever come to New Orleans by water? Does one bushel of Kansas grain ever come down the Missouri and the Mississippi, seeking an outlet to the waiting markets of Europe? Does one ton of the millions of iron and steel manufactured wares produced in Pittsburg and the valley of the Ohio river ever float down these rivers to this port to be shipped to the markets of the world?

"Not one barrel of flour, not one bushel of grain, not one ton of manufactured wares ever comes by these God-given highways for export to this, the second export city in all the United States. Why? Let me tell you why. Because the navigation of these waterways, great as they are, can not be depended upon, and freight, in these days of sharp competition, can not and will not wait on uncertain lines.

"From the corn and wheat fields that line the banks of the Missouri river, there are rail lines that reach another gulf port, and Galveston stands today first of all ports of the country in export of grain. From Minneapolis and from Pittsburg there are great trunk line roads that make to the eastern seaboard cities a more advantageous rate to shippers for foreign exports than is given to New Orleans.

"New Orleans has loyal railroads that give to it every advantage in their power, but the other seaboard cities have equally loyal railroads, and the only advantage that New Orleans possesses is this great system of waterways. Not till they are improved will New Orleans, as a gateway to the world, take her stand where she rightly belongs, at the head of all our seaports.

POLICY OF CONGRESS.

"Now what is the prospect for us in the halls of congress? Poor, I am afraid. The policy of congress toward waterway improvement has been miserly in the extreme. For the past ten years river and harbor bills have been adopted every three years instead of annually as other great appropriations, and have averaged only $19,251,000 a year, as compared with $66,958,000 for the navy, $69,704,000 for the army, $127,603,000 for the postoffice, and $143,242,000 for the pensions. During these ten years the average appropriations for all purposes of government have been $712,000,000 a year, and of this sum rivers and harbors have received less than 3 per cent, while other expenditures made in the interest of commerce, such as lighthouses, custom houses and the consular service, etc., got about 1 per cent, making a total expenditure for commerce of about 4 per cent. How does this compare with the army, navy and pensions—war and its rewards $280,000,000 a year, over 40 per cent of the whole—commerce getting 4 per cent and war 40 per cent—just ten times as much—and yet we are not considered a warlike people? I do not criticise the army and the navy and certainly have none but kind words and kind thoughts for the gallant veterans of our wars, but surely this is not fair play. Our commercial interests are not getting a 'square deal.' They must rise up in their might and demand it. Practically all our revenues come from commerce. Our splendid commerce makes us the wonder of the world, and annually pours into our lap a balance of trade in our favor of half a billion dollars a year. Such a commerce is entitled to proper and just recognition at the hands of the government and must receive it.

"We must have for our waterways $50,000,000 a year. A few years ago a rivers and harbors bill carrying an annual average appropriation of $50,000,000 might have caused some adverse criticism, but I am convinced that the country is ready and anxious for it now and would applaud its passage. Who dreamed of a hundred million dollar naval bill ten years ago? Yet we see it passed today with the hearty approval of the American people, who would not complain if it were much larger. We also see a great increase in every kind of national expense, except rivers and harbors. We see annually nearly a billion dollars appropriated at every session of congress, and it does not stagger us, for we are a billion dollar country. We have seen more than a billion dollars expended by the military arm of our government since the beginning of the Spanish war in 1898. Over one-half of this has been spent on our foreign possessions in the Philippine Islands, and yet many of our best statesmen are anxious to get rid of them at any price. They consider these islands a perfect incubus. A newspaper suggests that we might make King Alphonso a wedding present of the Philippines, and while I would be delighted to dispose of them in most any way, I am not so hard-hearted as to give that poor young man such a Pandora box of all evils.

"There are pending today before congress, with the approval of the engineer department, river and harbor projects which will cost over $400,000,000, and as I have just shown you, the projects of our valley, most of which are not yet approved, will cost about $300,000,000. This is a great country, and every section has its projects, many of which are very meritorious. How are you to provide for them and maintain exisiting works on $19,000,000 a year? It can not be done. We must change our policy. Congress must be induced to adopt a broad and liberal policy toward waterways, instead of the stingy, unliberal one it has always pursued.

"On the 15th and 16th of January last a national congress of the friends of river and harbor improvement was held in Washington City. It was a great convention. It declared unequivocally in favor of a broad and liberal policy toward our waterways; it declared in favor of annual river and harbor bills, and in favor of bills carrying at least $50,000,000 a year.

"To carry out its purposes an executive committee of fifteen was appointed with plenary power to arouse the American people on this most important subject and bring the needed pressure to bear on congress. In order to accomplish this task the committee decided to organize into one solid, compact body every friend of waterways in the union, to the end that our united forces might have the strength which divided we do not have. Active work has begun. Many commercial and waterway associations have already joined us and paid the small dues levied by the committee. The press is being enlisted in our behalf. The press is today the greatest power in the land, and as it usually exercises its power for the best interests of the people, I anticipate its enthusiastic help when it once understands us thoroughly. The committee will not favor or promote any special project, but merely stands for plenty of money to improve all really deserving waterways. If you wish your river improved, join our association and help in the general fight. This is an age of combination. The railroads—our rivals—have combined; let us combine. If we do so and make the firm, united stand which the merits of the cause warrant us in making, I predict that victory will soon be ours; that congress will adopt our views; that sufficient money will be appropriated from year to year to carry on wisely and well our various projects; that not only the Mississippi river and its tributaries, but every deserving waterway in our great union will be improved to its utmost capacity, and that prosperity and happiness will pervade the land."

Mr. C. E. Benjamin, general agent, passenger department of the Canadian Pacific, says that the Canadian Pacific will inaugurate a new Empress line of steamers from Montreal to Liverpool in May. The two new steamers under construction will be placed in service on that date.

Howard's Ship Yard, Jeffersonville, Ind., has been given contract to build two steel snag boats for the government at a cost of $84,966.

Generated on 2024-08-30 17:57 GMT / https://hdl.handle.net/2027/mdp.39015043584393
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

SUMMARY OF NAVAL CONSTRUCTION.

The summary of naval construction issued by the bureau of construction and repair, navy department, shows good progress on the part of all ship builders. The race between the Connecticut and Louisiana seems to be to the credit of the private ship yard. Following is the summary:

BATTLESHIPS.

Name of Vessel.	Building at—	1906: % of completion. Mar. 1.	Apr 2.
Virginia....	Newport News, S. B. Co.....	99.	99 ½
Nebraska.....	Moran Bros. Co.....	90.	92.
Georgia.....	Bath Iron Works.....	94.59	95.75
New Jersey.....	Fore River S. B. Co.....	97.5	98.5
Connecticut...	Navy Yard, New York....	96.13	97.11
Louisiana....	Newport News S. B. Co.....	97.19	97.92
Vermont.....	Fore River S. B. Co.....	76.3	79.3
Kansas.....	New York S. B. Co.....	74.2	75.7
Minnesota....	Newport News S. B. Co.....	83.52	85.27
Mississippi.....	Wm. Cramp & Sons.....	51.21	52.84
Idaho.....	Wm. Cramp & Sons.....	49.18	51.44
New Hampshire...	New York S. B. Co....	39.3	40.4
ARMORED CRUISERS.			
California.....	Union Iron Works.....	90.0	91.9
South Dakota....	Union Iron Works.....	89.1	89.8
Tennessee.....	Wm. Cramp & Sons.....	95.95	96.37
Washington....	New York S. B. Co.....	95.3	96.
North Carolina..	Newport News S. B. Co...	37.04	39.97
Montana....	Newport News S. B. Co.....	32.41	35.40
PROTECTED CRUISERS.			
St. Louis..	Neafie & Levy S. & E. B. Co...	90.56	93.37
Milwaukee.....	Union Iron Works.....	90.9	92.5
TRAINING SHIPS.			
Cumberland.....	Navy Yard, Boston.....	95.	95.
Intrepid....	Navy Yard, Mare Island....	97.5	97.5
SCOUT CRUISERS.			
Chester.....	Bath Iron Works.....	22.28	26.15
Birmingham....	Fore River S. B. Co.	24.5	28.6
Salem.....	Fore River S. B. Co.....	24.9	28.9
SUBMARINE TORPEDO BOATS.			
Submarine T. B. No. 9.....	Fore River S. B. Co.....	61.	63.9
Submarine T. B. No. 10.....	Fore River S. B. Co.....	48.9	52.5
Sumbarine T. B. No. 11.....	Fore River S. B. Co.....	50.9	58.2
Submarine T. B. No. 12.....	Fore River S. B. Co.....	48.3	51.4

WE MUST HAVE SHIPS.

Editor MARINE REVIEW:—When our Civil War began American ships carried 65 per cent of American foreign commerce. Today barely 10 per cent of American exports and American imports are transported in ships sailing under the stars and stripes.

It is a national disgrace that in 1903, and there is no improvement since, not a single American ship entered the ports of Germany, Austria, Italy, Denmark, Greece, the Netherlands, Norway, Russia, or Sweden. Again, in June, 1904, and frequently in the months since, not a solitary American merchant ship passed through the Suez canal. Unless our house of representatives speedily sees its duty and does it, we shall be further disgraced, a few years hence, by having to say the same in connection with the American Panama canal. Many of the South American delegates to the recent Pan-American congress had to reach the United States by way of Europe.

A very striking illustration of this great national defect, the want of American ocean-going merchant ships, is apparent in the large increase of our commerce with Turkey since monthly sailings from New York direct to that country were established. Prior thereto our goods had to reach Turkey by a roundabout route, 6,000 or 7,000 miles long. The result was that Turkey's market was mortgaged to England, Germany, Austria, and other European countries. Then came American ships, freight rates went down fifty per cent, and American sales immediately and largely increased. The net result was that in 1902 we sold Turkey thirteen times as much goods as we did in 1897, ports of Turkey not touched by the direct American service do not show any gain in the reception of American goods.

What was done with Turkey can be done with other countries. President McKinley realized this when, in the last great speech of his great life, delivered at Buffalo, he said, "We must have ships."

Schenectady, April 11. WALTER J. BALLARD.

ITEMS OF GENERAL INTEREST.

The steamer Plymouth, of the Fall River line, caught fire at her dock at Newport last week and may be a total loss.

The Harry T. Inge Steamship Co., Mobile, Ala., has given contract to Norwegian ship builders for a steamer for the fruit trade to cost $135,000.

Joseph Supple, Portland, Ore., will erect a large wharf adjoining his ship yard for the accommodation of steamers undergoing repairs at his yard.

The Pacific Mail Steamship Co., in connection with the Panama railroad handles most of the Guatemala coffee traffic, which amounts to 40,000 tons a year.

The Pacific Mail in fact now handles much of the $5,000,000 of imports, and the $7,550,000 of exports of Guatemala, in addition to a paying passenger traffic.

The Springfield Boiler & Manufacturing Co., Springfield, Ill., has been awarded contract by the city of St. Louis, for the construction of a steel harbor boat on their bid of $65,695.

The Newport News Ship Building & Dry Dock Co., Newport News, Va., were the lowest bidders for repairing the steamer San Miguel, damaged in collision with the schooner Henry T. Hayward on March 21 off Cape Henry.

The New England delegation in the house of representatives met on Saturday last and appointed Representatives Littlefield and Green to urge upon Speaker Cannon the necessity of favorable treatment for the shipping bill.

The steam schooner Quinault, building for the Hart-Wood Lumber Co. at Lindstrom's Ship Yard, Aberdeen, Wash., has been launched. The Quinault will be an oil burner and will be 175 ft. long, 38 ft. beam and 12 ft. 6 in. deep.

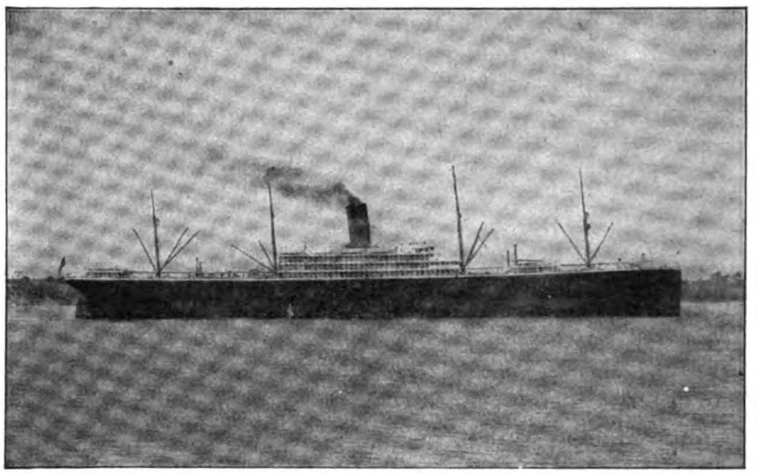
The new steamer Mexico, of the New York & Cuba Mail Steamship line, was launched last Saturday at Cramps, Philadelphia, and was christened by Miss Katherine Williams Smith, daughter of Mr. Alfred G. Smith, general manager of the line.

The firm of Lein, Irvine & Co., 328-332 East 33rd street, New York, has been dissolved by the retirement of Mr. Wm. Irvin. The business of the firm, however, will be carried on by John P. Lein & Sons, who will assume all obligations and liabilities.

The Pacific Mail reaches the Guatemala capital by means of the Guatemala Central road, which is owned by the Pacific Improvement Co., of San Francisco. The Pacific Mail admits that the Pan-American and Tehauntepec roads, in connection with steamships of Coalzacoalcos, the Atlantic terminal of the latter road, will make a bid for the coffee shipments to Atlantic cities of the United States, and to Europe, also that this route and the all-rail route through Mexico to the United States will be strong competitors for passenger traffic now enjoyed by the Pacific Mail Steamship Co.

Generated on 2024-08-30 17:55 GMT / https://hdl.handle.net/2027/mdp.39015043584393
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

Hyde Windlasses and Capstans



Steamship Minnesota equipped with Hyde Windlass and Capstans.

Selected for the Minnesota and Dakota of the Great Northern Steamship Co.'s fleet—the largest vessels ever built in the United States. They are also being installed on nearly all of the vessels now building for the Navy Department, Revenue Cutter service, Lighthouse Board and the United States Coast Survey.

Reason—Their Superiority

Send for Illustrated Catalog.

HYDE WINDLASS COMPANY

BATH, MAINE

Geo. L. McCurdy

169 Jackson Boulevard

CHICAGO ILLINOIS

INSURANCE

HULLS and CARGOES

DIRECT REPRESENTATIVE OF LEADING AMERICAN AND FOREIGN UNDERWRITERS

THE BOURNE-FULLER CO.

IRON STEEL

PIG IRON

COKE

Cleveland, Ohio.

The Williams & Rodgers Co.

EUCLID & PROSPECT AVES.—ARCADE

CLEVELAND, O.

We make a specialty of fitting out Boats

For 15 years we have enjoyed a very large trade in this line, and are better prepared to handle it than others who do not particularly feature it.

We know how to do it. Come to us for pointers.

The Williams & Rodgers Co.

New location 100 to 104 Euclid

Generated on 2024-08-30 17:55 GMT / https://hdl.handle.net/2027/mdp.39015043584393
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google

Digitized by Google

Original from UNIVERSITY OF MICHIGAN

WANTED and FOR SALE Department.

PROPOSALS.

U. S. Engineer Office, Duluth, Minn., April 2, 1906. Sealed proposals for building a steel tug complete, will be received here until noon May 2, 1906, and then publicly opened. Information on application. CHAS. L. POTTER, Major, Engrs.

U. S. Engineer Office, Jones Building, Detroit, Mich., April 14, 1906. Sealed proposals for dredging Round Island Shoals, St. Marys River, Mich., will be received at this office until 2 p. m. May 14, 1906, and then publicly opened. Information furnished on application. CHAS E. L. B. DAVIS, Col., Engrs.

WANTED

Marine Railway

WANTED: A Marine Railway of 1,000 tons capacity. Send particulars to D. G. DOBSON, Box 83, Midland, Ont.

Wanted.

Lighter to carry 1,000 tons. Two second-hand McMyler hoists with chain sheets

Address LIGHTER,
care Marine Review.

FOR SALE.

For Sale.

One American Ship Windlass No. 3 Towing Machine, complete with cable.

Address GEO. W. PFOHL,
No. 30 Ohio St., Buffalo, N. Y.

FOR SALE.

Coal Buckets.

Twenty-six long 5-ton Coal Buckets in good condition.

M. A. HANNA & CO,
Ashtabula, O.

Steamer

FOR SALE: "Welland" Canal sized wooden steamer. Box 97, care THE MARINE REVIEW.

A Bargain.

Steamer "Huntress," built in 1880, tonnage 114, length 110 ft., beam 18 ft., draft 7½ ft., carries 215 passengers Hull and boiler in good condition. For sale at a bargain. Apply for information to SMITH, DAVIS & CO., 200 Main St., Buffalo, N. Y.

For Sale.

One Boiler 16 ft. by 6½ ft. Marine Fire Box, allowed 100 lbs steam.

Address GEO. W. PFOHL,
No. 30 Ohio St., Buffalo, N. Y.

Marine Railway

FOR SALE.—Marine Railway 1,000 tons capacity, Boat Railway, 45 rods land, about 170 feet water front buildings. Two boilers, one is new, machinery and sawmill, etc. ABRAM CHACE, 507 Kempton St,, New Bedford, Mass.

FOR SALE.

For Sale.

One Upright Engine 14 x 16, Hall's build, in first-class shape, with wheel and shaft. Address GEO. W. PFOHL,
No. 30 Ohio St, Buffalo, N. Y.

Lumber Barge.

For sale cheap, Lumber Barge; capacity five hundred and eighty thousand. For full particulars inquire Box 96, MARINE REVIEW, Cleveland, O,

For Sale.

Five Scotch Boilers, allowed 160 lbs. steam. Good as new. ERIE MACHINERY CO., 729 Garfield Bldg., Cleveland, O.

A Bargain.

Steamer E. F. Gould, length 137 ft., width 28 ft, depth 8 ft. 5 in, tonnage 261 tons. Boiler, engine and hull in good condition. First-class, complete sand pumping outfit now installed on boat, will sell with boat if so desired. Apply

JOHN M. McKERCHEY,
Detroit, Mich.

THAT'S OUR BUSINESS

Buying, Selling, Chartering BOATS.

If you desire to charter, sell or buy let us help you.

CHICAGO STEAMER EXCHANGE,
No. 2 Rush Street.
Long Distance 'Phone Cent. 5046. **CHICAGO.**

GREAT LAKES REGISTER

FOR THE
CLASSIFICATION OF STEEL AND WOODEN VESSELS.

Estb. 1828 Estb. 1898

COMBINED AND ISSUED IN CONNECTION WITH

BUREAU VERITAS

INTERNATIONAL REGISTER OF SHIPPING.

THE RATINGS OF GREAT LAKES REGISTER GO BEFORE AND ARE ACCEPTED BY THE LEADING UNDERWRITERS OF AMERICA AND EUROPE. VESSELS BUILT UNDER THE SUPERVISION OF ITS SURVEYORS WILL RECEIVE SPECIAL RATING, AND WILL ALSO BE PUBLISHED IN BUREAU VERITAS INTERNATIONAL REGISTER OF SHIPPING.

PLANS AND SPECIFICATIONS FURNISHED.

GREAT LAKES REGISTER SURVEYORS ARE ESTABLISHED AT ALL THE PRINCIPAL PORTS ON THE GREAT LAKES.

F. D. HERRIMAN, SURVEYOR GENERAL,
820-822 Perry-Payne Building, . . . CLEVELAND, O.

CHARLES E. PECK. WILLIAM A. PRIME.

CHAS. E. & W. F. PECK,

Insurance Brokers. Average Adjusters.

ESTABLISHED 1870.

NEW YORK, 58 William Street,
BOSTON, 153 Milk St.
BUFFALO, 906 The Fidelity Bldg.
CLEVELAND, 1107-8 Williamson Bldg.
CHICAGO, 1115-16 Royal Insurance Bldg.

REPRESENTED BY
C. T. BOWRING & CO., (Insurance) LTD.,
5 and 6 Billiter Ave., LONDON,
and at "LLOYD'S" LONDON.

HULLS and CARGOES.

We place insurances in the most advantageous markets, employing, in the interest of our clients and with equal facility, all Foreign and Home companies, at the best procurable rates and terms.

We Represent Only the Assured.

The Blue Book of American Shipping, Marine Directory of the World, $5.00

Practical Marine Engineering

By PROF. W. F. DURANT

For Marine Engineers and Students, with aids for applicants for marine engineers' license.

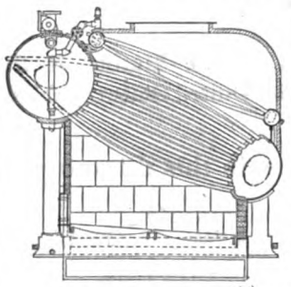
PRICE $6.00

FOR SALE BY

THE MARINE REVIEW, Cleveland

Generated on 2024-08-30 18:02 GMT / https://hdl.handle.net/2027/mdp.39015043584393
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

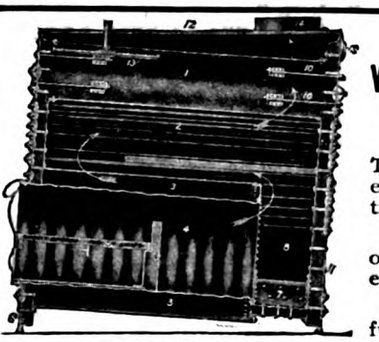
THE MOSHER PATENT WATERTUBE BOILER



Simplest, lightest most compact boiler made. Most accessible for cleaning and repair. Five vertical rows or as many as 45 tubes may be cleaned or withdrawn by removing the cover from a single hand hole. Largest grate surface on a given floor space. No joints in the fire. All joints expanded. Greater steam room and water capacity than any other boiler. Built in sizes up to 2000 H. P. Mosher Boilers have been supplied for eleven torpedo boats and the monitor Florida of the U. S. Navy, amounting to over 26,000 H. P., six torpedo boats for the Russian Navy two gun boats for the Mexican government, one cruiser and one torpedo boat for the Brazilian government; the steam yachts Arrow, Elide, Feiseen, Wauneta, Presto, and numerous other yachts and vessels.

SEND FOR DESCRIPTIVE CATALOGUE.

MOSHER WATERTUBE BOILER CO., No. 1 Broadway, N. Y.



Detroit Scotch Water Tube Boiler

Internally Fired.

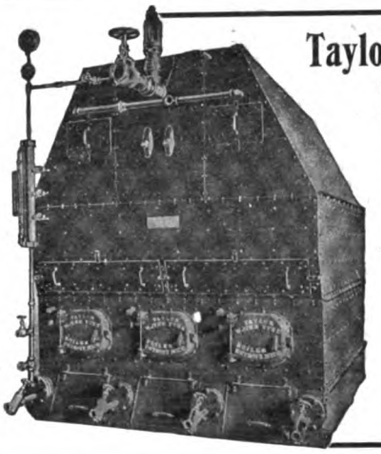
Scotch and Water Tube types combined, eliminating all objections.

Half the weight of ordinary Scotch boilers.

Standard corrugated furnaces.

Patent applied for. Investigate before buying any other.

EAST END BOILER WORKS
Detroit, Mich.

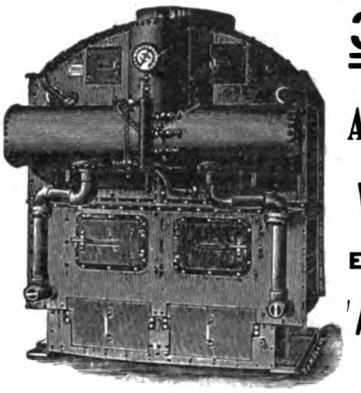


Taylor Water Tube Boiler Co.

Vertical Tubes, sectional, large steam space and liberating area.
Fire box, combustion chamber, and course for the furnace gases similar to the Scotch Marine.
Free circulation type.

Send for full description.

322 Franklin St.
DETROIT, MICH.



350 STEAM VESSELS

Now Equipped With

ALMY'S PATENT SECTIONAL Water Tube Boilers

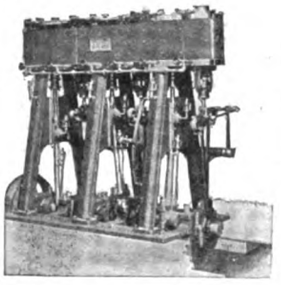
Bear Evidence of Their

Excellent Qualities

ALMY WATER-TUBE BOILER CO.
PROVIDENCE, R. I.

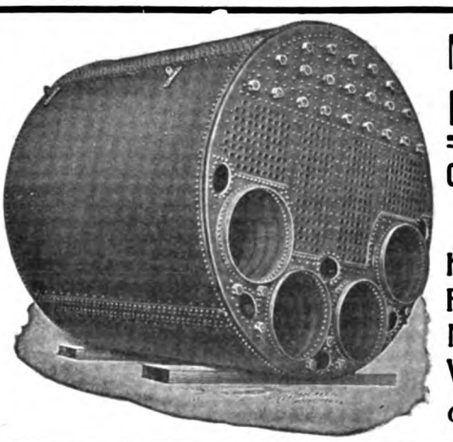
John E. Thropp & Sons Co.

TRENTON, N. J.



Builders of Single, Compound, Triple-Expansion and Direct Connected Engines.

Boyer Sectional Water Tube boilers and Machinery complete for light draft Passenger Boats, Yachts, Tugs, Etc.



MARINE BOILERS

OF ALL TYPES

KINGSFORD FOUNDRY & MACHINE WORKS,
Oswego, N. Y.

LATEST PATENT ANCHOR

THE NATIONAL

APPROVED BY LLOYDS.

Manufactured by

L. M. BOWERS & CO.,
Binghamton, N. Y.

Catalogue on Application.

The National and International

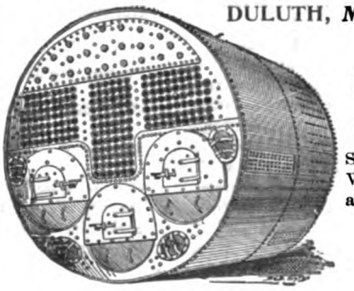
ANCHORS.

Furnished to the Lake Trade by

The Upson-Walton Co.,
CLEVELAND, O.

Northwestern Steam Boiler & Mfg. Co.

DULUTH, MINN.



Manufacturers of

BOILERS, ENGINES AND MACHINERY

Special facilities for Marine Work. Repairs promptly attended to Night or Day.

We carry a complete line of Marine and Engineers' Supplies.

TELEPHONES: OFFICE AND WORKS, 615.
RESIDENCE CALLS: M. A. RYAN, *Pres. and Gen'l Mgr.*, 776-R.
J. H. OPPERMAN, *Secretary*, 579-R; E. KRIZ, *Superintendent*, 557-M.

Generated on 2024-08-30 17:55 GMT / https://hdl.handle.net/2027/mdp.39015043584393
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

Buyers' Directory of the Marine Trade

For a more complete classification than that represented by advertisers in the Marine Review, see the BLUE BOOK OF AMERICAN SHIPPING, marine and naval directory of the United States, published by The Marine Review, Cleveland.

See accompanying index of Advertisers for full addresses of concerns in this directory.

AIR COMPRESSORS, AIR HOISTS, ETC.
Great Lakes Engineering Works.....Detroit.

AIR PORTS, DEAD LIGHTS, ETC.
Marine Mfg. & Supply Co.....New York.

AIR PUMPS AND APPLIANCES.
Fore River Ship & Engine Co..Quincy, Mass.
Great Lakes Engineering Works.....Detroit.

ANCHORS.
Bowers, L. M. & Co.....Binghamton, N. Y.

ANTI-FRICTION METALS.
Cramp, Wm. & Sons.....Philadelphia.

ARTIFICIAL DRAFT FOR BOILERS.
American Ship Building Co.....Cleveland.
Detroit Ship Building Co.....Detroit
Great Lakes Engineering Works.....Detroit

ASH EJECTORS.
Great Lakes Engineering Works.....Detroit.

ATTORNEYS AND PROCTORS IN ADMIRALTY.
Gilchrist, Albert J.....Cleveland.
Goulder, Holding & Masten.....Cleveland.
Hoyt, Dustin & Kelley.....Cleveland.
Jenkins, Russell & Eichelberger....Cleveland.
Kremer, C. E.....Chicago.
MacDonald, Ray G.....Chicago.
Shaw, Warren, Cady & Oakes.....Detroit.
White, Johnson, McCaslin & Cannon Cleveland

BAROMETERS, MARINE GLASSES, ETC.
Ritchie, E. S. & Sons.....Brookline, Mass.

BELTING (LEATHER).
Republic Belting & Supply Co.....Cleveland.

BLOCKS, SHEAVES, ETC.
Boston & Lockport Block Co....Boston, Mass.
Cleveland Block Co.....Cleveland.

BOAT BUILDERS.
Drein, Thos. & Son.....Wilmington, Del.
Kahnweiler's Sons, David.....New York.
Marine Construction & D. D. Co.....
.....Mariner's Harbor, S. I., N. Y.
Truscott Boat Mfg. Co....St. Joseph, Mich.

BOILER COMPOUNDS.
The Bird-Archer Co.....New York
Dearborn Drug & Chemical Works....Chicago.
State Manufacturing Co.....Cleveland.

BOILER MANUFACTURERS.
Almy Water Tube Boiler Co..Providence, R. I.
American Ship Building Co.....Cleveland.
Atlantic Works.....East Boston, Mass.
Chicago Ship Building Co.....Chicago.
Cramp, Wm. & Sons.....Philadelphia.
Dearing Water Tube Boiler Co.....Detroit.
Detroit Ship Building Co.....Detroit.
East End Boiler Works.....Detroit.
Fletcher, W. A. & Co.....Hoboken, N. J.
Fore River Shipbuilding Co.....Quincy, Mass.
Great Lakes Engineering Works.....Detroit.
Kingsford Foundry & Machine Works....
.....Oswego, N. Y.
Maryland Steel Co.....Sparrows Point, Md.
Milwaukee Dry Dock Co.....Milwaukee.

BOILER MANUFACTURERS—Continued.
Mosher Water Tube Boiler Co....New York.
Newport News Ship Building Co.....
.....Newport News, Va.
New York Shipbuilding Co.....Camden, N. J.
Northwestern Steam Boiler & Mfg. Co....
.....Duluth, Minn.
Quintard Iron Works Co.....New York.
Roberts Safety Water Tube Boiler Co....
.....New York.
Superior Ship Building Co.....Superior, Wis.
Taylor Water Tube Boiler Co.....Detroit.

BOILER RIVETS.
Bourne-Fuller Co.....Cleveland.

BOILER STAYBOLTS, IRON OR STEEL, HOLLOW OR SOLID.
Falls Hollow Staybolt Co..Cuyahoga Falls, O.

BRASS AND BRONZE CASTINGS.
Cramp, Wm. & Sons.....Philadelphia.
Fore River Ship & Engine Co..Quincy, Mass.
Great Lakes Engineering Works.....Detroit.
Lunkenheimer Co.....Cincinnati.

BRIDGES, BUILDERS OF.
Scherzer Rolling Lift Bridge Co.....Chicago.

BUCKETS, ORE AND COAL.
Brown Hoisting & Conveying Machine Co.
..... Cleveland.

CABIN AND CABINET FINISHING WOODS.
Martin-Barriss Co.....Cleveland.

CANVAS SPECIALTIES.
Baker & Co., H. H.....Buffalo.
Bunker, E. A. .....New York.
Upson-Walton Co.....Cleveland.
Republic Belting & Supply Co.....Cleveland.

CAPSTANS.
American Ship Windlass Co..Providence, R. I.
Dake Engine Co.....Grand Haven, Mich.
Hyde Windlass Co.....Bath, Me.
Marine Mfg. & Supply Co.....New York.

CEMENT, IRON FOR REPAIRING LEAKS.
Smooth-On Mfg. Co.....Jersey City, N. J.

CHAIN CONVEYORS, HOISTS.
Brown Hoisting Machinery Co. (Inc.)....
..... Cleveland.
General Electric Co.....Schenectady, N. Y.

CHAIN HOISTS.
Boston & Lockport Block Co....Boston, Mass.
Republic Belting & Supply Co.....Cleveland, O.

CHARTS.
Penton Publishing Co.....Cleveland.

CLOCKS (Marine and Ship's Bell) AND CHRONOMETERS.
Ritchie, E. S. & Sons.....Brookline, Mass.

COAL PRODUCERS AND SHIPPERS.
Hanna, M. A. & Co.....Cleveland.
Pickands, Mather & Co.....Cleveland.
Pittsburg Coal Co.....Cleveland.

COAL AND ORE HANDLING MACHINERY.
Brown Hoisting Machinery Co. (Inc.)....
..... Cleveland.

COMPASSES.
Ritchie, E. S. & Sons.....Brookline, Mass.

CONDENSERS.
Great Lakes Engineering Works.....Detroit.
Thropp & Sons Co., John E...Trenton, N. J.

CONTRACTORS FOR PUBLIC WORKS.
Breymann & Bros., G. H.....Toledo.
Buffalo Dredging Co.....Buffalo.
Dunbar & Sullivan Dredging Co.....Buffalo.
Graves & Stephens..... Cleveland.
Great Lakes Dredge & Dock Co.....Chicago.
Hickler Bros.....Sault Ste. Marie, Mich.
Hubbell Co., H. W.....Saginaw, Mich.
Smith Co., L. P. & J. A.....Cleveland.
Starke Dredge & Dock Co., C. H..Milwaukee.
Standard Contracting Co.....Clevelnad
Sullivan, M.....Detroit.

CORDAGE.
Baker & Co., H. H.....Buffalo.
Upson-Walton Co.....Cleveland.

CORK JACKETS AND RINGS.
Armstrong Cork Co.....Pittsburg, Pa.
Kahnweiler's Sons, D.....New York.

CRANES, TRAVELING.
Brown Hoisting Machinery Co.....Cleveland.

DIVING APPARATUS.
Morse, A. J. & Son.....Boston.
Schrader's Son, Inc., A..... New York.

DREDGING CONTRACTORS.
Breymann & Bros., G. H.....Toledo.
Buffalo Dredging Co.....Buffalo.
Dunbar & Sullivan Dredging Co.....Buffalo.
Fitz-Simons & Connell Co.....Chicago.
Great Lakes Dredge & Dock Co.....Chicago.
Hickler Bros.....Sault Ste. Marie, Mich.
Hubbell Co., H. W.....Saginaw, Mich
Smith Co., L. P. & J. A.....Cleveland.
Starke Dredge & Dock Co., C. H..Milwaukee.
Sullivan, M.....Detroit.

DREDGING MACHINERY.
Quintard Iron Works Co.....New York.

DRY DOCKS.
American Ship Building Co.....Cleveland.
Atlantic Works.....East Boston, Mass.
Buffalo Dry Dock Co.....Buffalo.
Chicago Ship Building Co.....Chicago.
Cramp, Wm. & Sons.....Philadelphia.
Detroit Ship Building Co.....Detroit.
Great Lakes Engineering Works.....Detroit.
Lockwood Mfg. Co.....East Boston, Mass.
Milwaukee Dry Dock Co.....Milwaukee.
Newport News Ship Building Co.....
.....Newport News, Va.
Shipowners Dry Dock Co.....Chicago.
Superior Ship Building Co....Superior, Wis.
Tietjen & Lang Dry Dock Co.....Hoboken, N.J.

DREDGE BUILDERS.
Manitowoc Dry Dock Co.....Manitowoc, Wis.

DYNAMOS.
General Electric Co.....Schenectady, N. Y
Thropp & Sons, John E.....Trenton, N. J.

ELECTRIC HOISTS AND CRANES.
General Electric Co.....Schenectady, N. Y.

Generated on 2024-08-30 17:56 GMT / https://hdl.handle.net/2027/mdp.39015043584393
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

G. H. Breymann & Bro's

CONTRACTORS FOR
PUBLIC WORKS

Dredging, Dock Building, Etc.

5, 6 AND 7 MARINE BUILDING
TOLEDO, OHIO.

GRAVES & STEPHENS

PUBLIC WORK CONTRACTORS

Dredges
Derrick Scows
Pile Drivers
Lighters
Concrete Plants

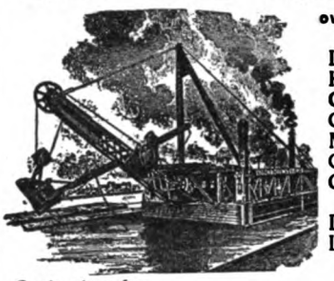
Commercial Bank Bldg. CLEVELAND, O.

Buffalo Dredging Co.

GENERAL CONTRACTORS
ON
SUBMARINE WORK

Office
D. S. Morgan Bldg. BUFFALO, N. Y.

GREAT LAKES DREDGE & DOCK CO.



OWNS AND OPERATES THE PLANTS OF THE FORMER COMPANIES:

Lydon & Drews Co.
Hausler & Lutz Co.
Green's Dredging Co.
Chicago Star Con. & D. Co.
McMahon & Montgomery Co.
Chicago Dredging & Dock Co.
Griffith, McDermott & Watt Dredging Co.
Duluth Dredge & Dock Co.
Lake Superior Contracting & Dredging Co.

Contractors for
RIVER AND HARBOR IMPROVEMENTS.
Main Office: 1319-1322 Chamber of Commerce - CHICAGO

DUNBAR & SULLIVAN DREDGING CO.
BUFFALO, N. Y.

Ready for Spring A New Tool

A REVOLVING CLAMSHELL DREDGE

which will do the following impossibilities to the ordinary dredge:

Excavate 60′ back from face of dock into scow or vice versa. Excavate at either end of itself and dump in scow at other end. This makes through cutting and cleaning narrow slips cheaply possible. Excavate trenches to 150′ or more depth. Excavate material and throw it one side 150′ from original site where there is four feet of water between dump and channel. Excavate shallow channels down to 4′ x 44′. Clean out boulders or obstructions without disturbing surrounding bottom. Excavate close to docks without injury to dock. Anything that ordinary derrick will do up to 10 tons at 75′ radius.

This is an excellent wrecking tool.

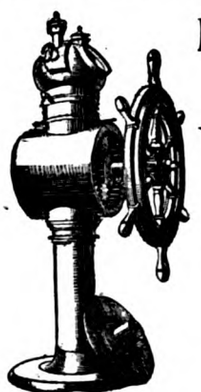
Hickler Brothers

SAULT STE. MARIE, MICH.

MARINE RAILWAY

Capacity, 1,000 tons. Draft, 7½ ft. forward, 13½ ft. aft. Length on keel blocks, 180 ft.; over all, 190 ft.

Machine Shop, Foundry and Steam Forge, Dredges, Drill Boats and Derrick Scows.



MARINE MFG. & SUPPLY CO.

157 and 158 South St., New York.

SHIP FITTINGS AND SUPPLIES
CAPSTANS, WINDLASSES, STEERING APPARATUS, ENGINE ROOM TELEGRAPHS, BRASS AIR PORTS, DEAD LIGHTS, PUMPS, ETC.

Catalogue A—Air Ports, Ventilators, etc.
Catalogue B—Windlasses, Pumps, etc.
Catalogue C—Steering Apparatus.
Others in course of preparation.

H. W. HUBBELL CO.

Submarine Work
of all kinds

Dredging Hard Material a Specialty.

SAGINAW - - MICH.

Generated on 2024-08-30 17:59 GMT / https://hdl.handle.net/2027/mdp.39015043584393
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN

Buyers' Directory of the Marine Trade.—*Continued.*

ELECTRIC LIGHT AND POWER PLANTS.
General Electric Co.....Schenectady, N. Y.
Thropp & Sons, John E.....Trenton, N. J.

ENGINE BUILDERS, MARINE.
American Ship Building Co.....Cleveland.
Atlantic Works.....East Boston, Mass.
Chicago Ship Building Co.....Chicago.
Chase Machine Co.....Cleveland.
Cramp, Wm. & Sons.....Philadelphia.
Detroit Ship Building Co.....Detroit.
Fletcher, W. & A. Co.....Hoboken, N. J.
Fore River Shipbuilding Co....Quincy, Mass.
Great Lakes Engineering Works.Detroit, Mich.
Hall Bros. .....Philadelphia.
Lockwood Mfg. Co.....East Boston, Mass.
Maryland Steel Co.....Sparrows Point, Md.
Milwaukee Dry Dock Co.....Milwaukee.
Mosher, Chas. D.....New York.
Newport News Ship Building Co.....
.....Newport News, Va.
New York Shipbuilding Co....Camden, N. J.
Northwestern Steam Boiler & Mfg. Co...
..... Duluth, Mich.
Quintard Iron Works Co.....New York.
Roach's Ship Yard.....Chester, Pa.
Sheriffs Mfg. Co.....Milwaukee.
Superior Ship Building Co....Superior, Wis.
Thropp, J. E. & Sons Co.....Trenton, N. J.
Trout, H. G.....Buffalo.

ENGINE ROOM TELEGRAPH, CALL BELLS, ETC.
Cory, Chas. & Son.....New York.
Marine Mfg. Supply Co.....New York.

ENGINEERING SPECIALTIES AND SUPPLIES.
Lunkenheimer Co. .....Cincinnati.
Northwestern Steam Boiler & Mfg. Co...
..... Duluth, Minn.

ENGINEERS, MARINE, MECHANICAL, CONSULTING.
Hynd, Alexander .....Cleveland.
Hunt, Robt. W. & Co.....Chicago.
Kidd, Joseph.....Duluth, Minn.
Mosher, Chas. D.....New York.
Nacey, James .....Cleveland.
Roelker, H. B. .....New York.
Wood, W. J. .....Chicago.

FEED WATER PURIFIERS AND HEATERS.
Greacen-Derby Engineering Co.....
.....Perth Amboy, N. J.
Ross Valve Co.....Troy, N. Y.

FIXTURES FOR LAMPS, OIL OR ELECTRIC.
General Electric Co.....Schenectady, N. Y.

FORGES.
Sutton Co., C. E.....Toledo, O.

FORGINGS FOR CRANK, PROPELLER OR THRUST SHAFTS, ETC.
Cleveland City Forge & Iron Co...Cleveland.
Fore River Shipbuilding Co.....Quincy, Mass.
Macbeth Iron Co.....Cleveland.

FLUE WELDING.
Fix's, S. Sons.....Cleveland.

FUELING COMPANIES AND COAL DEALERS.
Hanna, M. A. & Co.....Cleveland.
Ironville Dock & Coal Co.....Toledo, O.
Parker Bros. Co., Ltd.....Detroit.
Pickands, Mather & Co.....Cleveland.
Pittsburg Coal Co.....Cleveland.
Smith, Stanley B., & Co.....Detroit.

FURNACES FOR BOILERS.
Continental Iron Works.....New York.

GAS BUOYS.
Safety Car Heating & Lighting Co..New York.

GAS AND GASOLINE ENGINES.
Chase Machine Co.....Cleveland.

GAUGES, STEAM AND VACUUM.
Lunkenheimer Co. .....Cincinnati.

GAUGES, WATER.
Lunkenheimer Co. .....Cincinnati, O.

GENERATING SETS.
General Electric Co.....Schenectady, N. Y.

GRAPHITE.
Dixon Crucible Co., Joseph..Jersey City, N. J

GREASE EXTRACTORS.
Greacen-Derby Engineering Co.....
.....Perth Amboy, N. J.

HAMMERS, STEAM.
Chase Machine Co.....Cleveland.

HEATING APPARATUS.
Sutton Co., C. E.....Toledo, O.

HOISTS FOR CARGO, ETC.
American Ship Building Co.....Cleveland.
Brown Hoisting Machinery Co. (Inc.)....
..... Cleveland.
Chase Machine Co.....Cleveland.
Dake Engine Co..... Grand Haven, Mich.
General Electric Co.....New York.
Georgian Bay Engineering Works.....
.....Midland, Ont.
Hyde Windlass Co.....Bath, Me.
Marine Iron Co.....Bay City.

HOLLOW SHAFTINGS, IRON OR STEEL.
Falls Hollow Staybolt Co...Cuyahoga Falls, O.

HOLLOW STAYBOLT IRON.
Falls Hollow Staybolt Co...Cuyahoga Falls, O.

HYDRAULIC DREDGES.
Great Lakes Engineering Works.....Detroit.

HYDRAULIC TOOLS.
Watson-Stillman Co., The.....New York.

ICE MACHINERY.
Great Lakes Engineering Works.....Detroit.
Roelker, H. B.....New York.

INJECTORS.
American Injector Co.....Detroit.
Jenkins Bros. .....New York.
Lunkenheimer Co.....Cincinnati.
Penberthy Injector Co.....Detroit, Mich.

INSURANCE, MARINE.
Elphicke, C. W. & Co.....Chicago.
Fleming & Co., E. J.....Chicago.
Gilchrist & Co., C. P.....Cleveland.
Hawgood & Co., W. A.....Cleveland.
Helm & Co., D. T.....Duluth.
Hutchinson & Co.....Cleveland.
McCarthy, T. R.....Montreal.
McCurdy, Geo. L.....Chicago.
Mitchell & Co.....Cleveland.
Parker Bros. Co., Ltd.....Detroit.
Peck, Chas. E. & W. F..New York & Chicago.
Prindiville & Co.....Chicago.
Richardson, W. C.....Cleveland.
Sullivan, D. & Co.....Chicago.

IRON CASTINGS.
Sutton Co., C. E.....Toledo, O.

IRON ORE AND PIG IRON.
Bourne-Fuller Co.....Cleveland, O.
Hanna, M. A. & Co.....Cleveland.
Pickands, Mather & Co.....Cleveland.

LAUNCHES—STEAM, NAPHTHA, ELECTRIC.
Truscott Boat Mfg. Co.....St. Joseph, Mich.

LIFE PRESERVERS, LIFE BOATS, BUOYS.
Armstrong, Cork Co.....Pittsburg.
Drein, Thos. & Son.....Wilmington, Del.
Kahnweiler's Sons, D.....New York.

LIGHTS, SIDE AND SIGNAL.
Russell & Watson .....Buffalo.

LOGS.
Nicholson Ship Log Co.....Cleveland.
Walker & Sons, Thomas....Birmingham, Eng.
Also Ship Chandlers.

LUBRICATING GRAPHITE.
Dixon Crucible Co., Joseph..Jersey City, N. J.

LUBRICATORS.
Lunkenheimer Co. .....Cincinnati

LUMBER.
Martin-Barriss Co.....Cleveland.

MACHINISTS.
Chase Machine Co.....Cleveland.
Hickler Bros.....Sault Ste. Marie, Mich.
Lockwood Mfg. Co.....East Boston, Mass.

MACHINE TOOLS (WOOD WORKING).
Atlantic Works, Inc.....Philadelphia.

MARINE RAILWAYS.
Hickler Bros.....Sault Ste. Marie, Mich.

MARINE RAILWAYS, BUILDERS OF.
Crandall & Son, H. I.....East Boston, Mass.

MATTRESSES, CUSHIONS, BEDDING.
Fogg, M. W.....New York.

MECHANICAL DRAFT FOR BOILERS.
American Ship Building Co.....Cleveland.
Detroit Ship Building Co.....Detroit.
Great Lakes Engineering Works.....Detroit.

METALLIC PACKING.
Katzenstein, L. & Co.....New York.
The National Metallic Packing Co....Oberlin, O.

MOTORS, GENERATORS—ELECTRIC
General Electric Co.....Schenectady, N. Y.

NAUTICAL INSTRUMENTS.
Benjamin Farnum How.....Boston
Ritchie, E. S., & Sons.....Brookline, Mass.

NAVAL ARCHITECTS.
Hynd, Alexander .....Cleveland.
Kidd, Joseph .....Duluth, Minn.
Mosher, Chas. D.....New York.
Nacey, James .....Cleveland.
Wood, W. J. .....Chicago.

OAKUM.
Stratford, Oakum Co.....Jersey City, N. J.

OIL ENGINES.
Mietz, Aug. .....New York.

OILS AND LUBRICANTS.
Dixon Crucible Co., Joseph..Jersey City, N. J.
Standard Oil Co.....Cleveland.

PACKING.
Jenkins Bros. .....New York.
Katzenstein, L. & Co.....New York.
The National Metallic Packing Co....Oberlin, O.
Republic Belting & Supply Co.....Cleveland, O.

PAINTS.
Baker, Howard H. & Co.....Buffalo.
Upson-Walton Co. .....Cleveland.

PATTERN SHOP MACHINERY.
Atlantic Works, Inc.....Philadelphia.

Generated on 2024-08-30 18:02 GMT / https://hdl.handle.net/2027/mdp.39015043584393
Public Domain, Google-digitized / http://www.hathitrust.org/access_use#pd-google
Digitized by Google
Original from UNIVERSITY OF MICHIGAN